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THE MECHANISM OF FORCEPS DELIVERY

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This subject I believe is well worth our time to consider. The object of this paper is to more thoroughly familiarize ourselves with the landmarks of the pelvis, and fetal head, and to determine from these landmarks the direction, and amount of traction that should be made in that particular part of the pelvis in which the operation is begun.

The question often arises what kind of forceps should be used. DeLee answers this question by saying it is not the forceps but the man behind the forceps. For all forceps deliveries he uses a modified Simpson forceps, which is his modification. The shanks have been lengthened to such a degree, as to keep the handle away from the anus, thus lessening the chances of contamination. The average physician does not have time or experience to become familiar with more than one or possibly two different kinds of forceps. It is not easy nor wise to change and begin to learn all over again with a new forceps. I would recommend to the beginner a long Simpson forceps, but for the hospital where a great deal of pathology is present, at least three kinds of forceps. I would suggest Simpson, Kielland and Piper. These forceps are all made with a certain purpose in view.

To fulfill the true definition of forceps, an instrument designed to extract the fetus by the head from the maternal passages, without injury to it or to the mother, the indication for forceps must be present, the application correct and the traction, absolutely in the axis, of that part of the pelvis in which the operation is begun and carried through the changing of the different axis from there to the outlet. I am not going to give all the indications for forceps further than to say, that weak uterine powers are responsible for seventy-five per cent of forceps deliveries and we try to furnish that power with traction and guidance from below .

It would not be wise, and the time alloted me is too short, for me to go into detail in regard to the diagnosis for the use of forceps. It suffices to say that failure to make a complete diagnosis is one of the most common errors in obstetrical practice, perhaps the next most frequent is the incomplete preparation of the patient for operation, and by this I mean emptying the bladder and rectum before operation. Unless the patient is properly prepared, it makes the operation more difficult and injury to bladder and rectum more likely.

Now let us consider the landmarks of the pelvis so that we may become oriented in examining any pelvis, the axis of the inlet begins at the brim or promontory and extends downward to the level of the ischial spines, here the canal gradually changes until it is in the axis of the outlet. DeLee has called our attention to the transverse diameter at the spines, and in regard to engagement he calls this transverse diameter zero, and graduates it above in centimeters as minus, up to minus 5 centimeters, which is the level of the inlet, and all below the zero line as plus, plus 5 centimeters is the vulva, or the level of the outlet. I find this a very convenient way to determine the progress of labor. The spines are palpated on either side of the pelvis. This is easily determined either by rectal or vaginal examination. If the lower portion of the presenting part is at the level of the spine it is engaged. This helps to determine the direction of traction in any pelvis at any level.

LOW FORCEPS

According to H. J. Stander low forceps constitutes over 80% of all forceps deliveries, The fetal mortality is not great or the operation difficult except in certain funnel shaped pelves. In low forceps the greatest transverse diameter of the fetal head would be at or below the spines, and the

sagittal suture would be in the oblique or median line. For low forceps the Simpson is used and I will not go into detail in regard to application as I feel that no one now uses any other application other than the cephalic. The pelvic application is not safe unless the sagittal suture is in the anteroposterior diameter of the maternal pelvis. When the cephalic application is properly applied the sagittal suture will be in the median line of the forceps and the posterior or small fontanel will be in front. The traction should always be in the axis of the outlet and should be made outward and upward in that axis.

Now in regard to traction, the amount of traction should be moderate with intervals of relaxation, simulating the regular uterine contractions, with periods of rest. The forceps should be unlocked during periods of rest. The delivery must be slow giving time for molding. If the forceps has to be applied in the oblique position, rotation will take place without much assistance, just traction in the axis of the outlet, upward and outward.

MEDIAN FORCEPS

Mid forceps or mid-application is when the head is engaged but the biparietal diameter of the fetal head has not passed the interspinous line. The diagnosis is easily made by palpating the spines and then the fetal head, the sagittal suture is usually in the oblique diameter either right or left, in this position the Simpson forceps is the best to use. The traction is made downward in the direction of the axis of the inlet until the greater biparietal diameter reaches the low position, then it is gradually completed as a low forceps.

POSTERIOR POSITION AND DEEP TRANSVERSE ARREST

In posterior position and deep transverse arrest an attempt should be made at manual rotation, sometimes this will correct the position and is worthy of a trial always under deep anesthesia. If this fails and there is no marked disproportion I prefer the Kielland forceps. They are easier to apply and have a sliding lock and seem to be better for traction in the axis of the inlet. With the Simpson forceps the first blade must be introduced and rotated around the face for its position on the upper part of the head, the so-called wandering blade. The Kielland first blade is introduced under the pubic arch with the cephalic curve up, and then when the round part at the junction of the blade and shank is under the pubic arch the blade is rotated 180 degrees until the cephalic curve is on the fetal head, the second blade is easily applied posterior. This I feel is a great advantage in favor of the Keilland forceps. There is some advantage when the head begins to rotate as the Kielland has no pelvic curve and allows free rotation. This can be accomplished by the Simpson but it is much easier with the Kielland. I do not rotate but just allow the head to do its own rotation as it descends, The forceps is left in position and the fetal head is delivered over the perineum without changing the forceps. When we have delivered a child and find a deep mark of the forceps blades in the neck on one side we have made an error in application and have made too much traction laterally on the side where the mark of the forceps blade has buried in the neck. So we must always have the traction square center anteroposterior and laterally. High forceps is rarely performed and forceps on a floating head is never indicated, better a version or cesarean section.

FORCEPS ON THE AFTER COMING HEAD

Forceps applied to the after coming head, I believe you will agree, is by far the easiest for both mother and child if proper application is made. It has the advantage of fewer chances of injury to the child's neck. Traction on the lower jaw or pressure on the head, through the abdominal wall, unless this pressure is in the direct axis of the inlet may interfere rather than aid the delivery. The Piper forceps seems to be much better than any other due to their long pelvic curve. An assistant holds the child well forward and the right hand is inserted in the vagina to the right side of the fetal head, the left blade is introduced and applied to the right side of the head, the handle is then held steady by an assistant and the right blade is applied to the left side of the head. The blades are locked, and traction is made in the direction of the inlet until the chin is at the vulva when the traction is made upward aand outward. There is no hurry, as soon as the child's mouth is at the vulva it can be sponged out or better still a tracheal catheter may be used to remove the mucous, the head can be held steady at the vulva with the forceps with no danger of the head slipping up into the vagina and the child aspirating some fluid. Hot packs may be placed around the child's body and artificial respiration can be per-

formed if necessary before the head is extracted. This in my opinion is a great improvement over the Celsus Wiegand Martin method. The Celsus Wiegand Martin method should be tried before using forceps, but if the head is not easily delivered use the Piper forceps.

SUMMARY

1. All the operations necessary can be performed with one forceps, but with a forceps especially designed for making traction at a certain level of the pelvis, it is much easier and safer.

2. Every hospital should have at least three kinds of forceps, Simpson, Kielland, and Piper, they are instruments made to perform a certain function.

3. A complete diagnosis of position, type of pelvis and the progress of labor before any operation is considered, will reduce the mortality and morbidity considerably.

4. The direction of traction, anteroposterior and laterally must be thoroughly determined before forceps are applied.

DISCUSSION: *Dr. J. B. Eskridge, Jr.,* Oklahoma City.

The success or failure of the application of forceps depends entirely upon the operator's knowledge of the fetal head landmarks. One may misapply traction but if a mistake is made in the fetal head landmarks, either the fetal head or the maternal pelvis soft structures pay the bill. There is no doubt but that improper application, next to an undilated cervix, is the most frequent cause of failure in forceps manipulations.

I sincerely agree with Dr. Wells in that I believe that one should thoroughly familiarize himself with one instrument. We should understand the curves, the blades, shanks, handles and last but not least, indications for the instrument, and after we have mastered this one instrument we then may attempt to master other instruments. There are many men today who make no attempt to use other than one type of forceps on all operations. As Dr. Wells has stated, DeLee uses only one type of forceps, and it is said that Williams used only one type of forceps, while Pollack termed all forceps with the exception of Simpson and Elliot as "trick instruments." I am sure that we shall all do better work if we stay by the old standby instrument with which we are acquainted.

Dr. Wells in his paper has considered occiput posterior and occiput transverse under the same head, but I have always considered them separately, as an occiput posterior can be handled as a single maneuver of delivering them as an occiput posterior or then may be delivered as a double maneuver, first by rotating the head and then extracting. In occiput posterior the Kielland forceps is a most excellent instrument because with one application the head may be rotated and delivered without removing the instruments, while with other forceps a double application must be made, this being due to the pelvic curve difference between the two instruments to which Dr. Wells has already called our attention.

Occiput transverse arrent must be considered under two types, because in one there are four separate and distinct procedures while in the other there are three procedures. The one in which the bi-parietal diameter of the fetal head becomes arrested above the spines of the ischium, we must correct assynclitism, deflection, then the head is rotated and extracted, while in those in which the biparietal diameter is below the spines of the ischium the assynclitism is usually corrected and we find only the deflection thereby requiring only three maneuvers in its delivery. It has been my custom to handle the occiput transverse arrests above the spines of the ischium with the Kielland, since its sliding lock is of special value in assynclitic heads. This instrument is not without its dangers as the anterior blade traverses an entire circle within the uterus, but to a certain extent this danger is modified by complete anaesthesia. In occiput transverse arrests in which the biparietal diameter is below the spines of the ischium there are only three maneuvers; that of rotation, correction of deflection and extraction, and for this procedure I have made it a rule to use the Simpson forceps as I am better acquainted with this instrument and I rotate all heads before any traction is applied. I have found it to be next to impossible to rotate these heads with downward traction without applying a rotary movement, another thing being that if the rotation is accomplished before extraction, the arc formed by the forceps is with the handle while if the rotation is accomplished with the downward traction the arc is formed by the tip of the blades,

thereby causing damage to the maternal pelvic soft structure.

Dr. Wells' treatment of the aftercoming head is beyond reproach since the Piper forceps, due to its peculiar construction is one of the best instruments that can be used. The only mistake that can be made with other instruments is that we may attempt to make a posterior application instead of applying the blade laterally and this is next to physically impossible, while with the Piper it is nearly impossible to make a posterior application with the blade.

The summary of Dr. Wells' paper is excellent and I wish to stress one point in particular: that is, use the instruments with which you are acquainted, do not experiment with new instruments until you have studied them and thoroughly understand their indications, contraindications and their pecularities.

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POSTMORTEM EXAMINATIONS: METHOD OF OBTAINING PERMISSION

William J. Hoffman, New York (Journal A. M. A., Oct. 14, 1933), emphasizes the importance of necropsies in the instruction of students, development of new methods of treatment, verification of diagnoses, accumulation of accurate statistics and furtherance of research. The reasons underlying failure to obtain permission for postmortem examination are classified and discussed. A detailed plan of solicitation is described, the procedure of which is based on: unity of responsibility for securing permission for necropsy; cultivation of friendly relations between the family and the hospital personnel; a courteous and frank statement of the patient's condition while in the hospital; a prompt approach to the family after the death of the patient; a dignified, kindly and sincerely sympathetic manner during the interview; a frank discussion of the case; a tactful presentation of arguments for necropsy found by experience to be effective and the counter-arguments designed to refute the objections raised by the family. These arguments and counter-arguments are summarized, including expressions from leaders of the Jewish religion favoring postmortem examination and disavowing the frequently heard statement that necroposies are forbidden by Jewish rabbinic law. The results of this plan of solicitation are reported. Prior to the development and adoption of this procedure, the percentage of necropsies at the Memorial Hospital was 46.5. During the six months period following the development of this plan the proportion was nearly doubled. The monthly averages varied from 71 to 100 per cent, the average for the whole period being 82.3 per cent. The percentage of necropsies obtained from Jewish families was increased nearly sevenfold (from 8.3 to 62.5). Christians granted permission for postmortem examination in 89 per cent of cases. Regardless of nationality, race or religion, the chief reason impelling consent to necropsy was the family's gratitude for numerous acts of kindness and consideration, roused to its greatest power by the sincere sympathy and skilful persuasion of the solicitor.

THE USE OF CALCIUM IN PREGNANCY*

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During the routine care of prenatal cases there are often many symptoms that the patient complains of, which the physicians consider as trivial, and for want of a better explanation these complaints are relegated to the "dump heap" of pressure symptoms. So common has the use of "pressure of the uterus" become in explaining the milder ailments of pregnancy, that it is a loop-hole for the unknown; analogous to that other "unknown" which is so often used to ease the physician's mind, "biliousness." "We have to tell the patient something," is the way most physicians feel. Unfortunately no satisfactory explanation is given as to why some of the milder complaints occur, yet they are often-times very annoying to the patient.

During the last trimester of pregnancy one of the most frequent complaints my patients seem to have is tingling and numbness of the hands and feet, together with cramps of their legs. Often-times these complaints are associated with pains in the hips, stiffness and inability to walk comfortably after arising. At times there is a general malaise with considerable nervousness, irritability and insomnia. As a general thing the patient believes that the tingling of the hands and feet and cramping of the legs is due to "poor circulation" or that they have lain in one position too long, thus causing their hands and legs to go to "sleep." These complaints are often so severe as to cause the patient to be awakened several times during the night.

It is the belief of E. C. Hartley[1] that this is a tetanoid syndrome and he describes the symptoms as "cramp-like, or aching pains in the legs and thighs, irritability, insomnia and often-times edema of the extremities not associated with cardiac or nephritic pathology."

There is a similarity between the symptoms of the milder types of polyneuritis of pregnancy and the tetanoid syndrome. Wilson and Garvey[2] state that women are frequently seen in the last trimester of pregnancy complaining of numbness and tingling in the hands and arms, and at

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times sharp radiating pains in the arms, shoulders and lower extremities, which they designate as polyneuritis of pregnancy. It is also the belief of Kickman[3] that superficial discomforts such as numbness and prickly sensations are due to a polyneuritis of pregnancy and are often very difficult to reljeve.

The treatment suggested by Hartley[1] consists in the use of calcilact, parathormone injections and irradiated ergosterol. He experienced difficulty in getting patients to take other forms of calcium. The symptoms of his patients were ameliorated by this treatment. W. T. Pride[4] has successfully used calcium in the treatment of severe cramps of the legs during pregnancy.

For some time I have been using calcium gluconate and di-calcium phosphate on all patients who complain of tingling and numbness of their hands and feet or cramping of the legs. There has been absolute relief of these symptoms in two or three days without the addition of any other types of therapy. I also have found the use of this type of calcium of considerable value in many cases where there was insomnia, pain and stiffness of the hips and at times in general malaise associated with nervousness and irritability. I have made no effort to differentiate between polyneuritis of pregnancy and the tetanoid syndrome or calcium deficiency. It is a question in my mind as to whether the milder types of polyneuritis as they are commonly described are not due to calcium deficiency.

The following case will illustrate the condition in pregnancy in which I have found the use of calcium to be of value.

Mrs. L. S., para 11, was seen December 27, 1932, on her regular prenatal visit, her seventh month of pregnancy. She complained of her fingers going to sleep and of being very nervous and irritable. She also complained of a general malaise and marked insomnia, especially in the early morning hours. She was often awakened with severe cramps in her legs. This of course aggravated the insomnia. One gram of calcium gluconate three times daily was prescribed. Her symptoms were greatly relieved by the third day and completely so by the end of the week. The use of calcium gluconate was continued throughout pregnancy, without any signs of intolerance in the patient.

Of course all patients do not have such a combination of complaints. Usually the patient first notices tingling and numbness of the hands and arms. This is often followed by cramping of the feet and legs. However any one of the symptoms mentioned in the above case might be associated.

I do not believe that calcium therapy is a panacea for all the milder complaints of pragnancy and its promiscuous use would serve about the same usefulness as a "shot gun" prescription. However, we do know that there is a marked demand for calcium during pregnancy. Although we may attempt to supply it through milk or any dietary regime we have no assurance that all our patients carry out our directions as completely as requested. There is not much doubt that patients will often tell the physician that they have followed his requests in order to please his whims, as they see them, or to keep from being reprimanded. For this reason you cannot depend on patients keeping on a prescribed diet, and then too, a great many patients will not take milk or milk products. It has been my experience that it is easier to keep a patient on medication than it is on a diet. My patients are routinely placed on cod liver oil and Mead's cereal and are urged to have a liberal supply of milk and milk products in their diets. In spite of this quite a number develop evidence of calcium deficiency. At best, the average diet is deficient in calcium. I have used calcium gluconate and di-calcium phosphate because patients will tolerate either in large dosage. Theoretically di-calcium phosphate would be the drug of choice, especially if given over a long period of time, or if there existed a low phosphorous level of the blood. I have not found it necessary to use parathormone in any of my cases. If the function of the parathyroid glands were involved its use would certainly be indicated. It is my opinion that its use is necessary only in rare occasions.

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3. Chas. J. Kickman: Complications of Pregnancy As They Affect The Maternal Nervous System And the Bony Pelvis. New England Jour. of Med. December 15, 1932.

4. W. T. Pride. Memphis, Tenn. In conversation.

SUSPENSION OF THE UTERUS

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The subject of suspension of the uterus has long been under discussion. There have been over two hundred operations devised for the correction of uterine displacement, and to give even a synopsis of these operations would take too long. For example, in one year, one hundred and thirty-one papers were written on the subject of posterior displacement of the uterus, and the following year seventy-two papers were published on this subject.

It is not within the scope of this paper to recount all of the operations devised by mankind, but rather to tell of the writer's experience within the past few years with the type of suspension which he has been using.

A short resume of the history of displacements of the uterus is well within order. Medical men from the beginning to about 1600 recognized displacements and prolapse of the uterus, but they confused this condition with wanderings of the uterus into other positions of the body and kindred imaginary malpositions. Between 1600 and 1800, recognition of the dangers of displacements of the uterus in pregnancy rapidly came to the front. And in 1774, Dr. William Hunter reported a case of retroflexion of a pregnant uterus, which he endeavored to reduce. It was not until 1806, however, that Dr. Holyoke of Salem, Massachusetts, reported a case similar to the one described by Dr. Hunter. During the seventy-five years intervening, between 1810 and 1885, it became evident that displacements were more common than had ever before been believed. And during this time, the pessary first had its origin. In fact, pessaries became so common that peddlers went from door to door trying to sell them. Then in the latter part of the nineteenth century, operations were used almost exclusively for the treatment of uterine displacements, and the pessary began to occupy second place.

In 1840, Alquie published his first works; Koeberle followed in 1869; Adams in 1880, and Alexander in 1881, were working with extraperitoneal shortening of the round ligaments. But it was not until 1884 that Alexander gave his operation to the world and gained his renown. Within the next five years there were fifteen modifications. Up until 1913, nine additional modifications of the Alexander operation had been advocated. It is noteworthy that these modifications, with few exceptions, merely tended to complicate the original Alexander operation. Then several others made attempts to perform the work per vagina. This method soon fell into disuse and the world returned to the intra-abdominal routes.

Gilliam was the first to perform a round ligament suspension, and his operation we all know and do. Again, we find that the Gilliam operation had its modifications and likewise its complications. Soon the Baldy-Webster procedure was brought forward, and it was said to be better than any of its predecessors. Olshausen may be said to have been the stimulus for the anchorings of the uterus to the abdominal wall. Kelly bent the uterus in partial anteflexion, but soon improved on his operation with a ventrosuspension, which depends for its success on the production of an artificial ligament between the abdominal wall and the fundus uteri. One could go on and describe more of these operations and still not cover them all. And yet, with all our types of operations, no one surgical procedure has been devised to fit all cases, and still be free from all faults and dangers.

It is not necessary to go into the symptomatology of uterine displacement. We are all aware of the fact that many women have a displacement, and yet have no symptoms referable to the generative organs. The most common story of which we hear, is that of the woman who is the mother of several children, often borne close together, who says that she is uncomfortable in the pelvis, has a dull, dragging pain in the back, and feels as though her "insides were going to drop out." Upon examination of this patient we find that there is either a large laceration or else extensive relaxation of the perineal floor; the uterus itself is pulled down and turned, usually backward; the cervix is often lacerated. With the exception of this pelvic condition, rarely does she present any other abnormal findings.

During the past few weeks I have been reviewing the literature relative to operations devised for the relief of displacements, and it has been noticeable that each type of operation has given relief. But it seems that the ideal operation for displacements of the uterus would be one which would: (1) restore the uterus to a

normal position with normal mobility; (2) give the patient symptomatic relief; (3) give permanency for future pregnancies; (4) not complicate a subsequent pregnancy or labor; (5) permit recognition of possible complications of pregnancy; and (6) not subject the patient to any subsequent risks, as strangulation of the bowels.

At the gynecological convention held in St. Petersburgh in 1910, Dr. Van de Valde reported 217 different surgical methods for correction of displacements of the uterus. No doubt in the twenty-three years since that time there have been a large number employed in addition to the original 217. Yet today I doubt if there is one operation which is universally used, and which can be used for any and all cases of uterine displacement needing surgical intervention. And also we must remember that there are a number of patients who have displacements without symptoms, and hence, do not fall within the operative class. Consequently, we must be careful that we are not like the specialist in tuberculosis who always finds tuberculosis in his patient; the neurologist, who always finds something of a neurological nature wrong in his patient; the urologist, who always finds something at fault in the genito-urinary system; and so on among the specialists until the gynecologist has to find that all the woman's trouble is in a malcondition of the reproductive organs. As to whether we are right or wrong depends entirely on the results obtained by our surgical intervention. It has been my observation that those women who have suffered the above mentioned ailments and submit to operation, if improved, are really friends for life.

For the past few years I have been employing a modification of the operation as mentioned by Dr. Clarence B. Sacker of Dallas, Texas. In this modified procedure, the round ligaments are grasped anteriorly and sutured both to each other and to the fundus uteri. The point of suturing depends upon the relaxation of the ligaments. This operation requires but little time, and permits the fulfilling, in my opinion, of the six epostulates mentioned above. So far, the results have been such that my patients have been very grateful, because the symptoms have been alleviated. In addition to this type of shortening of the round ligaments, it is my practice to repair the perineal floor, to remove the appendix, and to correct pelvic disorders if present. Of course in this operative procedure all raw surfaces are carefully covered. And it is to be noted that the ovaries are invariably pulled out of the cul-de-sac where they might become swollen and cause discomfort to the patient. I am not presenting this operation as a new operation, but I am telling of the type I employ with the idea in mind of hearing the discussion by men whose experience exceeds mine, and to find whether they, through their more extensive experience, have had to abandon this type of procedure for correction of uterine displacements.

In conclusion, I wish to call your attention (1) to the six points, which in my opinion are necessary for any operation used in the correction of uterine displacements; (2) to the number of operations of uterine displacements now in vogue; and (3) to the method of shortening the round ligaments which I use in my operative procedure.

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DISCUSSION: *Dr. J. F. Kuhn*, Oklahoma City.

This paper certainly shows a large amount of work and effort. There is no doubt as to the effectiveness of this method in certain selective cases, and it like all other methods should be utilized in that type of patient to whom it is particularly applicable. I do not think we should tie ourselves to any one operation. I think we should have in mind several fundamental features, first as to whether this particular operation elected is going to fulfill the laxation of the cardinal ligaments, what will be the next step, then develop modifications for the particular type of operation that has been elected. This is one of the oldest types of suspensions, and it is very applicable in a large group of women, particularly if there is no relaxation of the vaginal vault and the ligaments show no pronounced relaxation.

Dr. Shaw: I have nothing further to say, except that I do perineal repair for the relaxed perineum.

UNUSUAL HEMATOLOGIC REACTION TO NEOARSPHENAMINE

Murray L. Rich, Cincinnati (Journal A. M. A., Oct. 14, 1933), reports a case of acute thrombocytopenic purpura in which a smear taken three hours following an injection of neoarsphenamine showed, in addition to the thrombocytopenia, the presence of numerous degenerated neutrophilic cells. There was also evidence of intense marrow stimulation. These conditions quickly disappeared. It is concluded that neoarsphenamine at times has not only a toxic depressant action on the bone marrow but also a destructive action on some of the circulating elements of the blood, and that the neutrophilic cells as well as the patients are susceptible to its action.

INLFUENCE OF ENDOCRINES ON MENSTRUATION

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There has been so much experimental and clinical work done in the past few years on the effect of certain endocrines on menstruation the busy practitioner can hardly find time to keep up with the progress made. Out of these efforts has come a clearer knowledge of the physiology of menstruation, correlation of the ovarian and uterine cycles, and a rational application of endocrine therapy. While all the glands of internal secretion have some influence on endocrine balance and remotely affect those concerning menstruation, it is my desire to consider only those of proven significance in menstruation. The glands directly responsible for the menstrual function are the gonads and the pituitary. The thyroid, while not necessary for menstruation, profoundly influences the cellular activity of these glands as well as all other metabolic processes, and cannot be ignored in this connection.

The normal menstrual cycle occurs every twenty-eight days, is characterized by histological changes in the endometrium, perfectly synchronized with corresponding changes in the ovaries, and entirely dependent upon their secretions.

Following menstruation there begins regeneration of the uterine mucosa. Simultaneously, the corpus luteum of the preceding cycle continues to disintegrate, while another primordial follicle begins development into another graffian follicle. For about fourteen days there is continued growth of the mucosa under the stimulating influence of oestrin, elaborated by the maturing graffian follicle. The mucosa becomes differentiated into layers, the glandular elements increase in length and number. Rupture of the ripened follicle now ensues and the ovum, with a large quantity of follicular fluid containing oestrin, is liberated. The latter is absorbed and carried to the uterus where it promotes uterine growth and vascularity. From the ruptured graffian follicle the corpus luteum is formed. The luteal body continues the formation of oestrin and assumes a new role in elaborating another hormone, progestin, which inhibits further follicular growth, and sensitizes the endometrium for nidation. Combined action of these hormones produce further

growth and turgesence of the endometrium, the glands become tortuous and distended with secretion, as the cells resemble decidua cells. Subsequently, menstruation occurs as a direct result of retrogressive changes in the corpus luteum and cessation of oestrin production. It is characterized by disintegration and exfoliation of the superficial layers of the hypertrophied endometrium opening the blood vessels of the spongiosa.

From the foregoing recitation of the physiology of menstruation it will be seen that the ovary produces two distinct hormones: Oestrin, the female hormone produced by the growing primordial follicle up to the time of ovulation, and the corpus luteum the latter half of the intermenstrual period, is wholly responsible for growth of the genital tube and determines the development of secondary sex characteristics. While its influence is a requisite of uterine growth, the unique role of this hormone in menstruation is stimulation of growth and vascularization of the endometrium up to the progestational phase, where the twin hormone of the corpus luteum, progestin, prepares it for nidation. Therefore, hyposecretion of oestrin is invariably attended with genital hypoplasia, evidenced by diminished functional activity, except in cases of delayed mestruation in adolescent girls where much genital hypoplasia has not yet occurred, and in follicle cystosis, a condition due to failure of follicle rupture from thickening of the ovarian tunic. The majority of cases directly attributable to lack of follicular hormone occur in adult women and are attended with lack of libido, amenorrhea, oligomenorrhea, hypomenorrhea and sterility, or various combinations of these. Recent literature on the subject of menopausal amenorrhea with its attendant vasomotor symptoms, contains numerous reports of brilliant results from the use of follicular hormone in these cases. Theoretically and clinically this is a most potent means of controlling these distressing vasomotor symptoms, yet the Council of Pharmacy and Chemistry failed to approve it for the list of official drugs. They reasoned that the influence of oestrin on the natural menopause must be guarded as the symptoms are subjective and the benefit derived from this therapy might be psychic. However, as no harm can come from the use of oestrin, at this time, there is a preponderance of clinical evidence in favor of giving it a trial.

The administration of follicular hormone in the treatment of the foregoing conditions is more or less problematical, as there is no way of determining the amount of hormone lacking, nor the time it will be most needed. There are methods of determining the oestrin content of the blood too complicated for universal adoption and not imperative for clinical application of this therapy. It is known that small doses have no effect on the parent ovary, while large ones have an inhibitory effect. The quantity given should be governed somewhat by the degree of genital hypoplasia as it is directly proportional to the lack of follicular hormone, keeping in mind the inhibitory effect of large amounts. Since the therapy is purely substitutive it may be advantageous to give the gonad-stimulating hormone of the pituitary in conjunction with the follicle hormone, with the expectation of increasing ovarian production of the hormone, permanently. Upon the assumption that growth and vascularization of the endometrium occurs during the first part of the intermenstrium through the influence of the follicle hormone—that the luteal hormone, progestin, reaches maximum concentration in the latter part just before menstruation, and that the effect of the latter is not growth-stimulating, the logical conclusion seems to be that hormonal substitution should take place during the time it has its greatest functional influence. Hence, the time for giving oestrin may be arbitrarily designated as the first twenty days following the menstrual flow.

The mode of administration is a mooted question. It has been determined that hypodermic administration is followed by rather rapid excretion of the hormone in the urine and other secretions. Furthermore, this is a painful and expensive method, but has the advantage of greater psychological influence which is a factor in the stimulation of glands of internal secretion through the autonomic nervous system; oral ingestion is more effective clinically because of gradual absorption and prolonged retention in the blood.

Follicle hormone is now available in several standardized products for both oral and hypodermic administration. The source of supply, the urine of pregnant females, amniotic fluid, placental tissue and others, seems sufficient for present therapeutic demands, and is being distributed under various trade names, namely:

theelol, theelin, amniotin, progynon and others. For convenience, the potency is designated by rat units—a generally accepted unit of measurement first employed by Allen and Doisy, and is put up in tablets, capsules and oil suspensions to be given by mouth, while for hypodermic use it is supplied in ampoules. The dose varies somewhat with the judgment of the clinician, but averages around fifty rat units daily.

Progestin, the specific hormone produced by the corpus luteum, seems to have a dual effect in sensitizing the endometrium for nidation, while it inhibits follicle development. On the surface these two secretions of the corpus luteum appear antagonistic, but they are actually synergistic in that the oestrogenic principle prepares the endometrium with growth and vascularization while the luteal hormone, progestin, produces the necessary progestational changes. Likewise, the corpora luteal hormone is necessary for the preservation of pregnancy, at least during the early months, through its nidatory influence and its ability to inhibit uterine contraction. It is believed that if fertilization and implantation of the ovum into the sensitized uterine mucosa occurs, there is some inherent stimulation of the anterior pituitary to production of additional lutenizing hormone for maintenance of corpora luteal growth and activity until the production of this hormone can be supplanted by elaboration of a lutenizing hormone by the placenta. So there is an interdependence of the fertilized ovum and the corpus luteum, at least during the early weeks of pregnancy. Evidence tends to show that it is the inhibitory influence of progestin upon follicle growth that prevents menstruation during pregnancy, as there can be no corpus luteum without maturity and rupture of the graffian follicle, and no true menstruation without the progestational changes produced by this hormone. Therefore, the indications for substitutional progestin therapy are: functional uterine bleeding, threatened expulsion of the products of conception, and certain types of sterility. There are no standardized preparations of progestin available, but lipo-lutin, agomensin and other commercial products of the corpora lutea are said to contain large amounts of the hormone, although they are not free from oestrin admixture, which may be a disadvantage in the treatment of functional uterine bleeding. While some of these cases of uterine bleeding may be from moderate lack of lutenization and respond to anterior pituitary sex-hormone therapy through its lutenizing effect, others will be benefited by the addition of a progestin product. Moreover, there is no disparity of sex-hormone in the blood of patients with threatened abortion of endocrine origin, so that substitution of progestin is the only therapy applicable. In the treatment of sterility progestin may be tried in regularly menstruating women who do not respond to the sex-hormone, in the latter part of the menstrual cycle for its nidatory effect on the endometrium. If this hormone could be obtained in a staple standardized form it would be ideal for the treatment of the foregoing conditions. However, notwithstanding the impurity of the present commercial products of progestin, clinical results justify their use until better may be had. The dose of progestin varies with the severity of the condition to be treated, but has no damaging effect in over-dosage as do some of the other hormones. An ampoule of the corpora lutea extract injected hypodermically every day or so during the time its effect is desired, is usually sufficient for clinical results.

Laboratory and clinical workers have recently established the fact that the anterior lobe of the pituitary gland produces in addition to a growth-promoting hormone, a gonad-stimulating hormone (sex-hormone) which totally controls ovarian function. This gland-stimulating extract designated prolan by Zondek and Ascheim, is said to contain two hormones: prolan-A, a follicle ripening hormone, and prolan-B, a lutenizing hormone. Whether there are actually two prolan hormones or only one, all investigators are agreed upon the dual effect of the gonad-stimulating hormone in evoking both phases of the ovarian cycle. In fact, it is our belief that the rhythmic intermittency of oestrin production by the graffian follicle and by the corpus luteum, in response to anterior pituitary stimulation, is responsible for menstrual periodicity. Experimental studies have shown that the greatest concentration of the sex-hormone in the blood of women is between six and nine days after the onset of the menstrual flow when the blood oestrin is at its lowest level. This leads to the hypothesis that the high oestrin content of the blood during premenstrium inhibits antorior pituitary activity

resulting in the corpus luteum regression causing menstruation.

Prolan is now being recovered in quantities sufficient for therapeutic needs from the urine of pregnant mammalians, has been standardized and is being marketed as prolan, follutein and antuitrin-S, and offers a wide range of usefulness in functional menstrual disturbances. There is some divergence of opinion as to the identical similarity of the sex-hormone obtained from the blood and urine of pregnant females, and that extracted from the hypophysis. Some believing that the pituitary produces a pro-hormone that is capable of converting the growth-promoting hormone into prolan; others that it is placental in origin. If it is placental in origin. it should be far more effective in increasing or restoring pituitary function than an extract obtained directly from the gland. Whether administration of sex-hormone stimulates the pituitary gland in the production of gonad-stimulating hormone or is purely substitutive, the influence on the ovaries is stimulative. It follows that conditions of hypo-function of either pituitary or ovaries are amenable to prolan therapy. The degree of reaction produced by administration of prolan depends entirely upon the amount given. Small doses stimulate all phases of the ovarian cycle: follicle growth and maturation, ovulation and lutenization. Large doses, however, rapidly convert the maturing follicle into lutein tissue before the occurrence of ovulation, resulting in hyper-lutenization. Therefore, large amounts should be administered during the latter part of the menstrual cycle only and at the time uterine bleeding occurs, while small doses may be given throughout the intermenstrium for promotion of menstruation through ovarian stimulation.

It has been estimated that eighty per cent of functional menstrual disorders are due to anterior pituitary insufficiency. We know the majority of amenorrheic women owe their condition to inadequate gonad-stimulating hormone, and that the functional bleeding of puberty and maturity is likewise due to this factor.

When we consider the significance of the anterior pituitary hormones in the growth and genital development of young girls approaching puberty, we should be concerned about evidences of pubesence. Delayed menstruation or abnormal bleeding are evidences of endocrine dysfunction and should be corrected. Delayed menstruation is directly due to lack of ovarian function which is dependent upon the gonad-stimulating hormone of the pituitary. Administration of thyroid, the endocrine activator, may stimulate the pituitary to production of gonad-stimulating hormone sufficient to meet ovarian requirements. If not, administration of sex-hormone, five to ten rat units every day or so, in conjunction with thyroid will yield gratifying results; whereas large doses of sex-hormone, two hundred units daily, is almost specific for functional uterine bleeding of puberty and adolescence. As previously stated, the mode of action of large doses of sex-hormone is through rapid lutenization of persistent graffian follicles, with subsequent production of progestin to neutralize the effects of the follicular hormone, oestrin. Bleeding at or near the menopause, however, presents a different picture. It has been shown that declining ovarian function of the menopause is attended by a compensatory hyperfunction of the anterior pituitary lobe in an attempt to stimulate the declining ovaries. Therefore, administration of sex-hormone in these cases could have no value.

There is an interval type of uterine bleeding not explained by the cyclic phenomenon before expounded, sometimes accompanied by pain. It has been suggested that this bleeding may be due to failure of folliculin between ovulation and the formation of a functioning corpus luteum, and that the pain is due to follicle tension from sclerosis of the ovarian tunic. As the bleeding and pain occur about the time of ovulation, and some observers have recognized minute hemorrhages in the endometrium at this time, we might assume that the bleeding is but an exaggeration of the normal histological changes. However, this may be, prolonged observation of some of these cases have been rewarded with ultimate recognition of cystic changes in the ovaries, which is suggestive of pituitary malfunction.

Functional dysmenorrhea is a menstrual dyscrazia frequently encountered in cases of genital hypoplasia of endocrinopathic origin, and occasionally due to fibrotic changes of another source. Of the various theories of the etiology of dysmenorrhea, including vascular tension from incomplete emptying of uterine vessels on account of replacement of uterine muscle with connective tissue, and instability of the autonomic nervous system, resulting

in increased irritability of the autonomic nerve endings of the uterus, the latter seems more logical because of relief afforded these patients by the sedative influence of oestrin on the autonomic nervous system, and the permanent cure resulting from sympathectomy. As mentioned, oestrin has a dual effect on these conditions: re-establishment of uterine muscle function through its growth-promoting influence, and sedation of the autonomic nervous system. The method of administration of oestrin in dysmenorrhea is the same as in genital hypoplasia. Occasionally it will be advisable to give progestin in the premenstrual period and during the flow where the dysmenorrhea is accompanied with menorrhagia.

The thyroid gland has long been recognized as the stimulator of endocrine activity, as well as the prime factor in general metabolism. A deficiency of this hormone in young individuals causing undergrowth (cretinism-dwarfism) likewise results in hypoplasia of the genital organs with attendant symptoms of hypofunction. Whether its influence on the sex organs is direct or through the pituitary gland the fact remains that administration of thyroid substance is often followed by alleviation of these symptoms, particularly where they are attended with a low or minus metabolic rate. While the functional menstrual disorders of thyroid origin comprise a number of the hypomenorrheal conditions, menorrhagia is a most common sequela of thyroid hypofunction. Thyroid extract, a known potent therapeutic agent in the treatment of general asthenia, obesity and other low basal disorders, will be found equally efficacious in the treatment of menorrhagia and hypomenorrheas, through its activation of the glands involved or in conjunction with supplemental hormonal therapy.

Lastly, I desire to call attention to the known relation of the mammary glands to that of the ovarian and uterine functions. As previously state, the oestrogenic principle of the ovary determines development of the mammary glands, and additional growth may be stimulated by administration of oestrin; yet it has no influence on lactation. On the other hand, the mammary gland, presumably through a hormonal effect, causes ovarian atrophy and subsequently lessens uterine bleeding as evidenced by the amenorrhea of lactating women. Whether this effect is direct through a hormone or through its influence on the pituitary, empirically it may be helpful in reducing uterine bleeding.

In summarizing the facts and theories enumerated and correlating them with the voluminous reports on the clinical application of endocrine therapy in the sexual sphere, one is impressed with the future therapeutic possibilities of these isolated hormones. While endocrine therapy is not a panacea for the ills of the menstrual molimen and should be administered with great caution, after the exclusion of anatomical and pathological distortion, it does offer certain definite effects exclusive of the psychological impression upon the autonomic nervous system.

1. Oestrin, the female hormone produced by the maturing graffian follicule and the corpus luteum, is a positive factor in genital growth and the determination of secondary sex characteristics. It is available for therapeutic administration and should be given a clinical trial in ovarian deficiency attended with genital hypoplasia, delayed and deficient menstruation and sterility. It may be advantageous in the treatment of menopausal and dysmenorrheic conditions, for its sedative effect on the autonomic nervous system. While in small doses it is a potent therapeutic agent for good, in large amounts it has a destructive influence on the ovaries.

2. Progestin, the specific hormone of the corpus luteum, is a necessary prerequisite to nidatory changes of the endometrium. Gestation cannot endure without its influence at least during the early months. It is almost specific in the control of functional uterine bleeding, through its inhibitory effect on follicle growth and uterine contraction. It is not available in pure form but may be had in certain nonstandardized products that are of some value clinically.

This luteal hormone may be tried in the premenstrual period of dysmenorrheics, accompanied by menorrhagia, for the control of bleeding. It may be tried in regularly menstruating women for its nidatory influence on the endometrium in the treatment of sterility.

3. Prolan (sex-hormone) a gonad-stimulating hormone produced by the anterior pituitary gland, totally controls both phases of the ovarian cycle and is responsible for menstrual periodicity. It is being recovered in pure crystalline form and disseminated for hypodermic admin-

istration. This sex-hormone offers a potent means of combating ovarian hypofunction through its stimulating effect, and anterior pituitary deficiency, by substitution. Small doses stimulate while large ones inhibit menstruation. Delayed menstruation and genital development are responsive to fractional doses of prolan, while large amounts are almost specific in the control of functional uterine bleeding. The interval type of uterine bleeding often accompanied by follicle atresia, may yield to the lutenizing effect of prolan.

4. Thyroid is the stimulator of all the glands of internal secretion, as well as of general metabolism. It is particularly indicated in functional menorrhagia, and may be helpful in the hypomenorrheas.

REFERENCE

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Medical Arts Bldg.

DISCUSSION: *Dr. Wendell Long*, Oklahoma City.

Dr. Wilson has very ably presented the information that is at our disposal at the present time and has outlined the influence of the endocrines upon menstruation. It is rather remarkable that at this time we know as much as we do about the endocrines in relation to menstruation. As you will recall, it was only four years ago that Zondeck of Berlin, was persuing his study on the influence of these particular glands in relation to the ovary. It was after that the ovarian harmones were isolated, so that much work has been done in the last few years. Much more is being done. Dr. Wilson has very ably pointed out these things that we know and he has tried to eliminate the controversial points, and yet with that sort of information at hand, one to be thoroughly scientific must admit that there is a great deal that we do not know about the endocrines and their relation particularly in connection with the genitals. A good example of the confusion that we have at present can be demonstrated by the recent work of Elmer Novak who was a very eminent man and has done probably as much as anyone else in this field.

It is true that in certain cases very carefully and very painstakingly worked out, sometimes a man will feel that a particular hormone is the thing to be used and he will use it probably at the proper time and the result will be rather discouraging. This does not minimize it in any sense, however, because it is of much more help. Dr. Wilson has talked about the means by which these things were done and the urgency to be used, but I should like to say that in determining the deficiency and determining the treatment and determining the pathology in these conditions, it is first the duty of every doctor to make a thorough examination of these people, going thoroughly over them and determining very carefully which hormone is to be given and how much to give. The present situation on hormones in relation to menstruation is a little bit confused. Dr. Wilson has talked about the very definite relation between the pituitary and ovarian function and the endocrines. That is about as far as we have gone. There is another influence, the influence of the breasts and thyroid and even simple things which have some effect upon menstruation; we cannot tell always how much influence it is going to have. For example, a few years ago we reported some cases of menorrhagia in obese people where simple reduction of weight reduced the menorrhagia so that they were perfectly normal thereafter, and after doing general physical examinations I cannot quite agree with the people who become terribly disturbed about the urgency of the moment and want to treat the pelvic condition rather than some other condition of the body which needs treatment about as much or more. For example, obesity, hyperthyroidism, tuberculosis, or any other definite pathological condition the patient may have.

This brings me to the last point I should like to discuss and that is the young woman—zealous protection of the woman not only at the moment but through the entire sexual life, and it is rather easy to be induced by the seeming urgency of the moment and do things that will materially affect that woman throughout her entire life. It is only necessary to point out to you men that young women who seemingly have great dysmenorrhea and other symptoms of pelvic trouble often go along and with time adjust themselves. What I really mean is this, in the present moment when we are coming to the point where we are getting positive sex hormones and getting hormones that are potent, we must not forget that the human mechanism especially in relation to the

whole system is a pretty reliable guide and it is hardly our duty to interfere. All of us have seen young women who have had profuse menstruation stop without any seeming cause at all. It is only where we have an alarming blood picture that we should interfere.

I have enjoyed Dr. Wilson's paper very much. He has presented the matter ably. This is a limited subject. It has its uses, but we must all be rather cautious, not becoming cynical or skeptical or on the other hand becoming terribly enthused.

Dr. Wilson.

I appreciated Dr. Long's discussion very much. I hope you will observe that I attempted to present this in a way that might be of some practical benefit to the men who are not attempting to go into it as thoroughly, perhaps, as Dr. Long and myself, and certainly the patient with whom you come in contact will give you more familarity with the physiology and pathology of these conditions. Obviously it will be necessary for me to omit discussion of any other than functional disturbances. I am glad that Dr. Long brought out the fact in his discussion of the importance of examination. First, of course, you must examine the patient thoroughly and eliminate any other than functional disturbances. As to menorrhagia of young girls, you all no doubt have had the experience that we have had in giving ovarian extract and mammary gland substances and these menorrhagias have cleared up, so that I believe this was due to the luteinizing effect of the ovarian extract, which so far seems to be definitely shown.

I tried to make clear the fact that a small dose was far safer and could be used, with impunity, whereas a larger one could be used only if handled with the utmost precautions. I do feel like that in the young girls who consult us time after time about delayed menstruation and lack of development of the genitals and breasts and female characteristics, that anterior pituitary hormones should be tried in these cases with the hope of promoting genital development for it has been definitely shown that these patients tend to be the infertile later on in life, and if this development can be promoted they are much more apt to be fertile during maturity.

BIOLOGICAL ACTION OF RADIANT LIGHT AND ITS USE IN MEDICINE

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With the discovery of the roentgen ray and radium, there arose the question that has arisen on the discovery of every new chemical substance or physical phenomenon, namely, what is the effect of these rays on life and living things? This was the expression of no idle or academic curiosity but was a serious question arising from that quest—as old as the history of man—which has been the reason for the birth and much of the development of the sciences we know today—which is, the better understanding of disease and knowledge of how to minimize, prevent, and save the victim from the ravages of disease. So eager is this quest that with radiant light as with every other discovry in chemical, physical, or biological fields, scientists hastened to apply the new found phenomenon to diseased tissues without waiting to understand the nature or carefully studying the effects of radiant light on living tissues. This led to such disastrous results that the use of radiant light in medicine or the hope of finding any beneficent effects were almost abandoned. However one effect of radiant light has kept alive the hope of beneficence and stimulated the continued study of this phenomenon—that effect is the destruction of tissues. It is largely for this effect that it is used today and it is the hope of learning how to control this killing effect that the study of radiant light goes on. It is for the purpose of summarizing and bringing to your attention the results of these studies that this paper is presented.

For the purposes of this paper I shall not enter into the physics of radiant light. Also I will make no distinction between X-ray and radium emanations because in the words of Dr. Francis Carter Wood, "There is no evidence at present to indicate that there is any difference between filtered X-ray and radium rays in their biological action." Which of the two sources of radiant light will be used in a given case is decided by two considerations, one economic and the other the location and accessibility of the lesion to be treated. The economic reason is so appar-

ent that it needs no explanation. It is a question of cost. An X-ray outfit costing $5,000.00 will give as effective radiation as $2,000,000.00 worth of radium[1]. The other consideration—location and accessibility of the lesion—is also made plain in a word. If the lesion is accessible, for example in the uterus, the implantation of radium in the lesion comes nearer radiating only the tissues desired than the X-ray which must pass through many centimeters of tissue in order to reach the desired point. Also there are two questions arising in the latter instance. One is, what is the light doing to the tissues through which it must pass to reach the desired point? The other is, what are these tissues doing to the light, so, what is its effectiveness when it reaches the desired point? These are some of the points that will be taken up in the following discussion.

When radiant light was first discovered it was applied in what might be termed its crude form. The first point noted in the effect of its application was a delayed reaction. That is, several days passed after the application before anything happened. The next effect noted was that a process of tissue destruction set in which grew steadily deeper and wider and, worse yet, failed to heal, so that gaping wounds were left. This was due, as we now know, largely to over dosage but as was stated above, this almost led to the abandonment of the use of radiant light. However, as with Pandora's box a hope was born or left behind out of this disaster. Perhaps here, because of its destructiveness, was the long, long sought for cure for cancer. During the years that have passed since the discovery of this phenomenon, radiant light in the treatment of cancer has been made use of with what success we shall see. During this time also, two lines of investigation have gone on. One directed to an understanding of radiant light, and the other, to its effect on tissues.

So far as radiant light itself is concerned, especially radium rays, the rays as they issue from their source are not simple or single rays, all of the same nature, but are compound, or there are a series of rays of different wave lengths. Thus radium emanations are now divided into three sets, alpha, beta and gamma. It is obvious that each of these series would have a different effect on living cells. Therefore, the problem arose to find some way of separating these emanations so that the desired series might be used. It was found that by passing the rays through various substances the longer wave lengths could be absorbed or stopped allowing only the shortest or gamma waves to pass. It was also found that much of the burning of the tissues was due to the longer wave lengths, which was fortunate since they are the easiest stopped. Another thing that was found out was that the rays emanating from a given point were not like arrows shot from a port hole but like the petals of a chrysanthemum, leaving a given point at every angle up to 180 degrees. So before making an application to a given area a portal must be provided so as to as near as possible get only the parallel rays else a much greater area than desired would be radiated. However, there is a limit to which a portal may be reduced for depth dosage, because with reduction of portal, fewer rays can pass so that with a portal 20x20 mm., a better depth dose can be given than with a portal 2x2 mm., or a 30% smaller dose can be given with the larger portal[2]. It was also found that the greater the distance of the source of emanation from the surface to be treated the more parallel the rays which reached the surface, so that better results are obtained with a distance of 80 centimeters than 5 centimeters, about 40 centimeters being the best mean for X-ray.

As to what the tissues do to the radiant light, measurements have shown that, for example, a dose of 200 Kv filtered through .75 mm., of copper with a portal 20x20 mm., the dose at 10 centimeters below the surface is 40% of what falls on the skin. Thus under the most favorable conditions 60% of the emanations are lost in passing through 10 centimeters of tissue[3]. What becomes of this 60%? Dr. Wood states that, "with high voltage 50% of the energy entering the tissues may scatter back to the surface." The remainder of the loss is absorbed by the tissues through which the rays pass. In other words, the tissues act as filters and absorbers of radiant light. That they do act this way is shown by the reaction of the tissues, because since there is a reaction of the tissues, and since the tissues must absorb the emanations in order to be affected by them there must be an absorption in proportion to the reaction. This absorption is not a constant factor that can be calculated because each type of tissue has a different absorption coefficient, and, as will be brought out later, this varies with the

same tissue at different times. So it is evident that one never knows in subsurface dosage—for example, breast carcinoma, or bone marrow—how heavy a dose is reaching the desired area, except that the amount of light applied to the surface must be several times as great as that desired in the area to be radiated.

The question as to what radiant light does to the tissues is by far the most important and fundamental proposition, for this is the sole reason for using these rays in medicine. As stated above, it was the killing effect of radiant light that has kept up the study and use of this agent, but it has been found to have other effects which will be discussed later.

Radiant light has been applied to all infectious processes as well as tumors and blood diseases such as leukemia and primary anemias. The results have been encouraging and discouraging, both as to effect on different lesions, and individual cases of the same type. So far as infectious diseases are concerned, radiant light is now used only in certain types of skin lesions. Its use is valueless in deep lesions and positively detrimental in certain types of lesion, for example tuberculosis. The results obtained in the application of radiant light to tumors has not been attended with uniform results either in general or in the hands of individual investigators. Some are enthusiastic for its use, some condemn it as useless if not actually pernicious, and there is no general agreement as to how or when radiant light should be used if at all. The reasons for this disparity of results are many. Some of them have already been indicated, but there are many others. In order to find out what these factors are vast sums of money have been expended and millions of observations have been made in special institutions for this study, in laboratories and in the clinical field. Let us now turn to some of the typical and significant observations and the interpretation of them.

In order to study the extent and nature of the biocidal action of radiant light various laboratory experiments have been carried out. These have consisted in exposing to radiant light, root tips, insect eggs, cells in tissue cultures and masses of tissue in cultures. If more isolated cells in tissue cultures are exposed to radiant light they almost immediately lose their motility, apparently shrink and then disintegrate. These effects are more noticeable at the periphery of the culture. The cells in this region are the youngest cells in the mass. This, and similar observations have led to what might be called Dustin's law of radiosensitivity. Dustin[4] states that those cells are particularly sensitive to radiation in which the nuclear chromatin is in a condition of consolidation or karyokinesis, resting cells are more resistant. Another set of experiments dealing with factors effecting the transplanting of cultured cancer tissue are summarized by Fischer, Lasar, and Mayer[5]. These men state that cancer cells rayed without transfer to new medium, stand high doses without interference with growth, while if rayed with only small doses, die if transplanted to new media.

What could be a more ideal cure for cancer? Cancers are supposed to be composed of young cells and a large part of these cells are in a state of karyokinesis. Therefore cancer cells should be more radiosensitive than tissue cells which are for the most part resting cells. Further, if radiated cells tend to die if transplanted it would surely look as if radiation of a tumor would prevent metatases, and this is the most serious of all phases of the cancer problem. If it were not for metastases cancer would not be nearly so serious a disease.

With renewed hope, backed and based on the experimental facts just cited let us turn to the clinical field and see what has been the actual result, and if or not there are other problems to be solved. Himmelmann and Lehman[6] reviewing the cases of cancers of the breast at the University Clinic at Bonn treated with surgery alone and with surgery and X-ray found that of the cases treated with surgery alone 42.6% were living at the end of three years and 34.6% at the end of five years, while those treated with surgery and radiation 32.4% were living at the end of three years and 16.7% were living at the end of five years. Halberstaedler and Simons[7], reviewing cases of radiated and non-radiated cancer conclude that the prognosis is 40% more favorable in non-radiated than radiated cases. Giordano[8] ridicules the treatment of lingual carcinoma with radium and X-ray. Wickham[9], reporting twelve cases of carminoma of the parotid concludes it is not proper to use radiation when the tumor can be completely removed surgically, Fraser[10], reviewing six hundred forty-six cases of malignant involvement of the external auditory meatus recommends radiation af-

ter surgery. Warwick[11], recommends extensive blocking with radium before surgery, to prevent metastasis. Some clinicians report good results, equal to or better than surgery. There is a pretty general agreement that radiant light does give results equal to or better than surgery in cancer of the cervix. Some point to the fact that surgery is no sure cure for cancer and that granted the results of radiant light are no better than surgery, its use is less mutilating, does not require an anaesthetic nor prolonged hospitalization. This latter attitude is not scientific, and is very like excusing one's misdeeds by saying, "everyone else is doing it."

So it would seem that the sun which rose so bright and clear soon went behind clouds and left us in probably deeper gloom than before. But the fact still lingered that radiant light destroys tissue. So the study and use of radiant light goes on.

If we turn again to experimental and clinical observations we find facts which partly explain the disparity of opinions and discouraging results just cited.

On the experimental side, using simpler organisms we find a situation illustrated by a statement of Wood[12], which is as follows, "If a group of fifty paramoecia are obtained by reproduction from a single individual so that they are all of the same age, each individual will be found to have a different radiosensitivity." From clinical observation we find that squamous cell epitheliomas of the rectum are more radio sensitive than adenocarcinomas of the same organ. In the cervix uteri the least differentiated types are more highly radisensitive while in the tongue and lip, where the cancers arise from the same type of tissue, the best results are obtained in the most highly differentiated types. Lymphoblastomas are very radiosensitive while melanoblastomas are not affected injuriously by radiation. Again it would seem that the problem was near solution; that all that was necessary was to know the type of tumor and that experience would soon give us a catalogue of the radiosensitivity of the various types of tumors in the different parts of the body. This latter is a pretty well known fact, and it is also well recognized that it is all important to know the type of tumor in each case, because of this variation in radiosensitivity, otherwise the use of radiant light may be useless, or detrimental as will be pointed out.

Again, however, we find that the problem is not solved, for other factors come in to make the solution more difficult. Not only is there a variation in the radiosensitivity of different types of tumors but in the same tumor some elements are highly sensitive while others are highly resistant, which is also true of normal tissues[13]. In cancer nodules of the skin radiated with dosage up to 10% in excess of an erythema dose, some were apparently cured, some regressed and promptly returned, others showed no effect. Further, all tissues, both tumor and normal are capable of developing an immunity to radiant light. Nor are these facts bad as they are, the worst of the story. Excision, years afterwards, of some of the "healed" skin tumors reported above, showed, on examination, the presence of living tumor cells[14]. So the doubt arises as to whether any tumors are ever completely killed by radiant light. Is it not the truth of the matter probably that in supposed cures what has really happened is that part of the tumor is killed, but some of it merely becomes inactive which state may last for years. Following radiation any tumor decreases in size. This is due partly to the destruction of part of the tumor, and to the effect of the radiation on other tissues. Following this reduction the tumor either reappears or not. It it does not reappear it is counted as cured, when as a matter of fact it may be like Frederick Barbarossa, not dead but sleeping and will awaken later, as many of them do, when the appropriate stimulus is present. Fortunately sometimes this does not happen during the life time of the patient.

There are other phases of this question which we left behind sometime ago. What has become of that 60% of radiant light which was deflected and absorbed by the tissues? What has been the effect of radiation on other tissues while we were endeavoring to kill the tumor? Some of them are killed. Some normal tissues are no more radio resistant, if as much so, than some cells at least of a given tumor, and since the tissues, if there be any above the tumor, receive more radiation than the tumor the destruction of some of them cannot be avoided. The white cells are infinitely more sensitive to radiation than cancer cells. McCallum[15] states that destroying lymphocytes by X-ray enormously increases the susceptibility to tumor implantation. Radiation causes venous dilitation, disintegration of vessel walls and thrombosis. It also causes fibrosis. In

fact some authorities state that the main beneficial effects of radiation in the treatment of tumors lies in the thrombosis and fibrosis resulting, for, they state the reduction in circulation aids in the destruction of the tumor and reduces its opportunity for further growth and prevents metastases, and the fibrosis tends to encapsulate and sequester the neoplasm. It is for these reasons that many recommend the use of radiation before surgery.

This phenomenon of fibrosis brings up another effect of radiant light on tissues, that is hyperplasia or overgrowth. The overgrowth of tissue due to radiation is never normal, that is it varies in its structure from the hyperplasia of the same tissues due to other causes. This variation may be so extreme as to amount to actual tumor. In the early days of the use of radiant light the technicians and operators of X-ray machines frequently developed cancers which were undoubtedly due to the frequent exposure to the radiant light. Kamuro took soy beans which he soaked and radiated from a Coolidge tube, then planted. They had nodules and cells displasias on the root tips which he interpreted as roentgen tumors. Blacklund[1] reports a case and reviews eleven others in which sarcoma developed following X-ray for tuberculosis of a joint. Goodman and Price[2] report a case of multiple prickle cell epithelioma developing several years after repeated X-ray for psoriasis. There is a strong possibility that some cases reported as recurrences following radiation are in reality secondary tumors caused by the radiation for the cure of the first tumor. Two cases where this was undoubtedly true have come under the observation of the author. One, M. H., white woman, age forty, unmarried, developed a tumor of the left parotid. This was removed surgically and the area radiated for fear that it was not possible to go extensively enough with the surgery. This tumor was one of the mixed type common in this locality and not usually malignant. Two years later a second tumor appeared near the scar of the former operation. This tumor was an adenocarcinoma not resembling any part of the former tumor. The second case, Mrs. W. S., age fifty-two, white, developed a carcinoma in the right breast. This was removed by radical operation and radiated. A year later a carcinoma developed in the left breast. This was also removed by radical operation and radiated. Within the next year some twelve or fifteen cancer nodules developed in the skin which had been radiated. The fact that the second tumor in the first case was so different from the first precludes the fact that it was a recurrence, and is grounds for strong suspicion that it was due to the radiation. In the second case the second tumor probably, and the third crop certainly were due to radiation. This was proven by the different origin and the absolute indifference of the third crop to radiant light. They were, if anything, stimulated by it.

If we take all the experience and data on hand at the present time with regard to the biological effects of radiant light we find, (1) That radiant light has a powerful effect on animal cells, especically on tissue cells in culture, on the white blood cells, bone marrow, and generative tissues. (2) That this effect is influenced by the age of the cell, the presence and quantity of pigment within the cell and certain unknown factors which probably determine the absorption of the light by the cell. (3) That the effect is manifest by (a) cesssation of activity and quiesence of the cell, which may last for years; (b) by death and disintegration of the cells; (c) by hyperplasia of the cells; (d) by distrophy, and abnormalities in the carrying on of the vital functions. It is in all probability, the stimulating effect of radiant light that makes it valuable in the treatment of certain skin diseases, especially acne, for cultural studies of the skin will show that the microorganisms found in these lesions have not been killed.

That radiant light is a very valuable therapeutic agent there is no question, both for its killing and its stimulating effects. But it should not be used until the exact nature of the tumor or lesion is known, and it should never be used except by skillful, carefully trained operators. Excessive and insufficient radiation are each useless or dangerous. It is a valuable aid in the treatment of cancer but is not a sure cure for any tumor and is valueless in some types of tumor and some instances of any type. It is the only treatment of any value yet found in certain blood diseases. It is to be hoped that future studies will solve the problem still in doubt so that radiant light will give to suffering humanity the valuable blessings it holds in store.

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DISCUSSION: *Dr. E. S. Lain,* Oklahoma City.

The subject which has just been presented by Dr. Turley is a timely one—one which should be discussed more frequently. He has well presented the subject of histologic reaction of radiated tissue, normal and pathologic. I want to compliment him upon that part of his presentation. I have known Dr. Turley for many years and esteem him as my personal friend. As a pathologist he has no peer in Oklahoma. However, I am compelled to disagree with some of his deductions or clinical judgments concerning the therapeutic values of radiation, which includes both X-ray and radium in certain pathologic conditions.

For statistics upon radiation treatment and conclusions of others, he cites thirteen references. Two of his references are standard textbooks. Two are well-known medical authorities who live in the United States, though nine were selected from European countries. The European authorities quoted, who appear discouraged with radiation treatment in malignancies, were evidently selected from those who were either biased in their opinions or were using antedated and inadequate X-ray equipment, and drew their conclusions from a very limited number of cases treated.

I had the privilege of visiting the X-ray and radium laboratories of many European clinics during the year 1930, and observed that most of them were—on account of economic conditions—sadly lacking in modern X-ray machines and an adequate supply of radium. Therefore, I am convinced that American radiologists, during the past ten or fifteen years, have far excelled European radiologists, both in improved technique and therapeutic results.

One of the authorities from which he quoted namely, Giordano, "ridiculed the treatment of lingual and oral carcinoma by radium and X-ray." Dr. Turley failed to tell you that this surgeon also does not believe in diagnostic biopsy in malignancy of the oral cavity.

Dr. Turley expresses a personal opinion that radiation treatment of malignancies may hasten or even cause metatasis. Dr. Francis Carter Wood of Columbia University, from whom the essayist quotes extensively upon the effect of radiation on normal and pathological tissue, also adds within the same discussion (Journal of the American Medical Association, March 9, 1929), the following:

"There is still much discussion as to the stimulating power of very low doses of radiation and the question cannot as yet be finally settled. One moot point, however, has been determined and that is that radiation of any type does not tend to spread a cancer or cause metastasis.

"Clinicians are often misled by observing unexpected metastases in irradiated patients, but this means only that the patient's life has been so prolonged by the treatment that sufficient time has elapsed to permit extensive or unusual metastasis."

Dr. George W. Crile of the Cleveland Clinic Foundation declares in the Radiological Review, August, 1932; "Portmann, by an extensive statistical study of the comparative results of operations for cancer of the breast with postoperative and without postoperative radiation, has convinced us that: (1) the average natural duration of life for a patient with carcinoma of the breast is three years; (2) as a result of operation, about 38 per cent will be free from the disease for the natural duration of life and the average survivals for five years will be about 30 per cent; (3) intensive cross-fire, postoperative radiation is harmful but as the result of superficial doses at least 10 per cent more patients may be expected to survive for five years, than among the nonradiated cases: (4) gratifying results may be obtained from radiation in some of the hopelessly advanced cases of carcinoma of the breast."

I might also quote similar favorable

opinions upon radiation treatment in malignancies from Dr. William W. Healy of Memorial Cancer Hospital, New York City; Dr. Max Cutler, formerly of Memorial Cancer Hospital, New York City, but more recently head of the tumor clinic of Michael Reese Hospital, Chicago, and Edward Hines Junior Center, Hines, Illinois, and many other American surgeons of wide experience though time will not permit.

In relating case history No. 1, Miss M. H., Dr. Turley expresses an opinion as follows "The fact that the second tumor in the first case was so different from the first precludes the fact that it was a recurrence, and is grounds for strong suspicion that it was due to the radiation."

May I remind him that the records in this case, both from St. Anthony's Hospital and the Lain-Roland Clinic, show that this patient had been operated upon the second time and a laboratory diagnosis of adenocarcinoma of the parotid gland had been made long before she received her first X-ray or radium treatment. Therefore his conclusions are erroneuos.

Dr. James Ewing has very wisely called our attention to the capriciousness and the high percentage of malignancy of tumors of the parotid gland, and concludes that: "All such tumors should be heavily radated, after which many disappear, and the others may then be subjected to interstitial radiation or to careful surgical removal."

Our most experienced and qualified medical authorities now agree that only with the harmonious cooperation of the surgeon, the internist, the pathologist and the radiologist in all serious cases of cancer can we hope to bring about the largest number of successful cures.

Dr. Ralph Myers, Oklahoma City.

As far as the subject of radiant light, that name should be applied to that portion of the rays which impress the retina, and this should properly be called radiant energy. I want to speak a little about these two cases Dr. Turley mentioned and I want to bring out that these mixed tumors do sometimes recur. I have seen a good many recurrences, just as he says, and it may be several years after they have been removed. The next time they recur much more quickly. They keep growing more and more, and in this one where there were so many recurrences in the breast, in these cases metastasis is very common and it is ridiculous to assume that X-ray caused it. We don't get cancer from a series of treatments wisely given; it is only after repeated insult to the skin over a long period of time that we get them. Sometimes where you don't know the exact nature of a tumor and you can't take a specimen a lot of times, then you have to use your best judgment and go ahead and treat it. Lots of times you get amazing results. There are other times when X-ray will tell you the type of tumor you have. You know you can't get a specimen safely and you go ahead and treat it and you get a very good cure. When you get a good response to the radiation treatment of a tumor that was suspicious, then you pretty nearly have your diagnosis.

Dr. Turley: I am very glad that I waked up this section. Some things were said. I said to Dr. Lain before he came up here he looked as if he were going to present a case in court. I confidently believe he should have been a lawyer and not a physician.

I only want to say that attempting to impinge upon the solidity of recognized authorities, whether European or American or anyone else, is not discussing the problems we are meeting. I read the whole of all the articles. How would I know which to light on if I had not read them? I said I was presenting the concensus of opinions of authorities over the world. The shoemaker ought to stick to his last. So far as Dr. Lain's trying to state that my authorities landed with Noah in his ark, I can show him a case where there was metastasis in 1932, with the radiation by the latest type of apparatus that could be bought by the best workers in that line. We see not one case or two cases, but thousands of cases where there is metastasis during the course of radiation treatment. My point remains, the point of variability of sensitivity to radiant light. I agree with Dr. Myers this should not be called radiant light; it should be called radiant energy, but I did not think this audience would recognize that. I recognize that this should be called radiant energy and I accept the amendment. In the fact of variability of sensitivity of radiant light, I tried to bring out the factor which probably explained the response of this tumor and the response of the same tumor under a different radiation. These facts I have given are up to the minute

observations from this country as well as abroad. I also gave some experiments with some things, root tips and infected eggs and such, carried on in this country as well as abroad. So I maintain that my points are still good and if they are not good that is yet to be proven. I stated that there was a great variability of opinions, that there is no one thing about which there is a greater diversity of opinion than radiant light in various types of lesions. Also, as Dr. Lain says, in the the treatment of tuberculosis we have not shown that the tuberculosis bacilli are killed by radiant light.

Dr. Myers:

I quite agree with Dr. Lane. The shoemaker should stick to his last; his paper proved it.

In the first place he has headed his paper with an improper title. Light refers to those wave lengths which stimulate the retina and not to the X-rays or radium rays. Radiant does call to mind radioactive matter, but it should not be used in connection with light. A more proper title would have been "The Biological Affects of Radiant Energy."

Unfortunately in his anxiety to traverse an unknown sea he has let his foot slip rather badly in his own field. It is common knowledge among those dealing very much with malignancies that mixed tumors of the salivary gland may seem quite innocent at first, but they are very prone to recur following surgical removal and to gradually become more and more malignant until they exhibit full-fledged malignancy, such as in the case which Dr. Turley cited. In the beginning there are many elements in the tumor, but as they become more and more malignant the epithelial portion comes to the forefront.

I must also take exception to his second case of malignancy supposedly due to X-ray treatment. Skin recurrences are seen all too frequently following breast amputations, both when postoperative radiation treatment has been applied and when not. It seems ridiculous to me to assume that these skin nodules which he speaks of were anything else than a recurrence of the original tumor.

Radiation treatment very rarely, if ever, causes malignancy when properly applied and when there are proper intervals between each course of treatment. The cases in which malignancy has occurred as a result of radiation have been where a constant insult to the skin has occurred over a long period of time, such as in the case of early workers in the X-ray field.

Dr. Turley stated that one should have a microscopic diagnosis from a biopsy section before anyone should venture to institute radiation therapy. I quite agree that we should have such a diagnosis whenever it does not appear that it would be detrimental to the best interests of the patient to get a biopsy specimen. However, there are many cases when it is not feasible and sometimes when it is impossible to do this. Furthermore, there are certain cases in which radiation treatment serves as an all important aid in making the dianosis. Dr. Ewing's tumor is a very good example of this. There are quite a few cases on record which have been erroneously diagnosed as chronic osteomyelitis by the pathologist. In some of these cases X-ray treatment has shown what the true diagnosis was. Many other types of cases could be cited where radiation treatment should be given as an aid in clearing up the diagnosis, whether or not it has been possible to get a biopsy specimen.

CURRENT QUESTIONS IN PROCTOLOGY: CHAIRMAN'S ADDRESS

Curtice Rosser, Dallas Texas (Journal A. M. A., Sept. 30, 1933), in his article entitled "Current Questions in Proctology," points out that the present-day proctologist excises a fistulous tract, whereas two decades ago he incised it and three decades ago used a seton or caustic, without special thought of the fact that Hippocrates presented a choice of the knife, the horse-hair seton or the escharotic covered tent for the identical lesion. During our own lifetime the angiotribe, the cautery and the scalpel have each crossed the stage as principal actors in the operation of hemorrhoidectomy as they have crossed and recrossed it during the centuries since Hippocrates described the destruction of piles by pressure, by fire and by cutting. Proctology has been in recent years reclaimed to orthodox medicine through increasing realization of its import in the general medical scheme. Accurate diagnosis became essential and the Hanes position, electrically lighted colonoscope and the perfected barium ray have made it possible. Proctologic surgery has thus rightly concerned itself with the ceremonies associated with the art of surgery, but its futile progress will be indexed by its solution of questions connected with the science as well as the craft of our domain. Any number of interesting problems and adjustments remain for systematic investigation. The author discusses several phases of comparative surgical pathology applicable to this field, and takes into consideration the venereal problem as it involves the lower part of the intestine.

IMPRESSIONS AFTER TEN YEARS' USE OF RADIUM IN GYNECOLOGICAL CONDITIONS*

PAT FITE, M.D,, F.A.C.S.
MUSKOGEE

After following the reports on the use of radium in gynecological conditions as used by Clark, Kelly, Burnham, Miller and others, we began the use of it in 1922.

It is not intended in this treatise to discuss other than quite superficially, the physics nor the technique of the application of radium but rather the conclusions reached from its use over something like ten years and a half. A radium salt representing fifty milligrams of radium with brass screening was used throughout. Occasionally some additional screening was used. We have used it in the following conditions:

1. Carcinoma of the cervix.
2. Carcinoma of the fundus uteri.
3. Bleeding at the menopause.
4. Menorrhagia and metrorrhagia from other causes of a questionable functional type.
5. Fibroid tumors of the uterus.
6. Uterine polyp.
7. Endocervicitis.
8. Carcinoma of the urethra and vaginal wall.

1. *Carcinoma of the cervix.* Because of the shape of the cervix and its inaccessibility to other forms of radiation, radium applicators are peculiarly adaptable to this condition. In our experience between 90 and 95 per cent of the cases of carcinoma of the cervix coming to us are either inoperable or borderline cases. The Memorial Hospital in New York reports 80 to 85 per cent. Prior to the use of radium, in these cases our treatment was very unsatisfactory. In the majority we could do nothing and there was a high percentage of recurrence in those operated, altogether a very discouraging situation. Since the use of radium we have been able to get five year cures in approximately 25 per cent of these cases and in an additional 60 per cent to get rather marked alleviation of their symptoms especially as to bleeding, pain and sloughing, for which the patients are quite thankful. The plainly operative cases that have come to us we have treated with radium and these have practically all resulted in five year cures. The more rapidly growing (the more nearly embryonic) type of cell, the more rapid the subsidence of the growth. The inverting type of growth does not respond quite as rapidly as a rule as the fungating form. The dosage has been as a rule not less than 3000 milligram hours, usually at one sitting. Occasionally this has been increased in extensive growths and with additional screening, as high as 6000 milligram hours. In our experience the radio sensitive growths show marked recession within three weeks and practical disappearance in from six to eight weeks. In those cases in which recession does not take place within the first three or four weeks, further radiation has been of very little service.

As a matter of routine all these cases have been given deep x-ray therapy to the pelvis as an adjunct. The first case, a frankly inoperable one, which was treated in the early part of 1922, is still living and clinically well. An occasional troublesome aftermath following these cervical cases is a pyometra which results from contracture of the scar tissue in the cervix following the disappearance of the carcinoma. This should be watched for in all cases in which the cervical canal tends to close down and can be relieved by repeated dilatation of the canal. There is also an occasional cystitis or proctitis resulting from heavy radiation which may persist in varying degree for periods up to six months. In our experience this complication has never been of more than minor importance.

2. *Carcinoma of the fundus uteri.* Our attitude toward carcinoma of the fundus uteri has been that this is an operable condition in the majority of cases and should be so treated except in frankly inoperable situations and it is in this last type only that we use radium and that with the idea of palliation only. In this connection we feel that all cases of irregular bleeding from whatever cause, particularly at or after the menopause, should have a disgnostic curettage before any form of treatment is undertaken as occasionally a carcinoma of the fundus will be discovered in this way. It is our rule to have a pathological examination of all uterine scrapings.

3. *Bleeding at the menopause.* This condition is admirably suited to radium treat-

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ment and it constitutes the easiest and most certain treatment of the condition and can be utilized with safety in the advanced stage of secondary anemia often seen in these cases and the result is almost 100 per cent successful. These cases should always be curetted at the time the radium is introduced because of the possibility of malignancy. The amount of radiation administered is 1500 milligram hours as this almost always suffices to produce a menopause and is just short of a dose that will produce superficial necrosis. There is usually a rather thin leukorrhea for several months afterwards which gradually subsides. They may menstruate for a month or two before finally stopping.

4. *Menorrhagia and metrorrhagia from other causes of a questionable functional type.* Some of the most difficult cases that we have had to treat have been in women in the twenties and thirties with excessive menstruation and for which no cause could be found other than a presumed functional disturbance. These often come with advanced secondary anemias and do not respond to the ordinary glandular therapy nor to medical treatment of their anemia. In such cases we generally do a diagnostic curettage which often discloses a marked hypertrophic endometritis. At this time the uterine cavity is treated with carbolic acid followed by alcohol. This alone usually limits their bleeding for a month or two. Should it occur after that we have often used from 300 to 600 milligram hours of radium in the uterine cavity from which it is expected to produce a temporary amenorrhea rarely extending over more than two or three months. After treating a fair number of these cases in this way with rather indifferent results and comparing those with and without transfusion in which advanced secondary anemias were present, the results have shown that one or more transfusions have been of more benefit in stopping the bleeding than any other therapeutic measure as it seems that when a marked anemia is present a vicious circle is set up which is best broken by the transfusion. Occasionally an obstinate case of this type will occur in cases of pulmonary tuberculosis in which the loss of blood is detrimental to the cure of the disease and in these cases we do not hesitate to give a larger dose, even to the point of producing an artificial menopause. Another type is that occasionally seen in younger women following a bilateral salpingo-oophorectomy in which obstinate bleeding comes on within a few months. These we have treated with curettage and application of 1200 to 1500 milligram hours of radium with success in all cases.

5. *Fibroid tumors of the uterus.* The intramural type of fibroid is probably best adapted to this form of treatment, the subserous and sub-mucous varieties less so. For the moderate sized fibroid near or after the menopause, 1500 milligram hours of radium applied within the uterine cavity will cause a recession and practical disappearance of the growth in 75 to 80 per cent of the cases. The rate of disappearance is quite variable, sometimes extending over a period of a year or more, but as a rule within six months, and it is generally understood that degenerative fibroids should not be treated with radium.

Once or twice we have had occasion because of the extreme condition of anemia in the case of sub-mucous degenerative fibroids in which we were unable to obtain donors and in whom removal of the tumor would have been homocidal, to resort to breaking into the degenerative mass from within the uterine cavity, establishing good drainage, and to introduce the radium directly into the center of the degenerative tumor. In these cases the patients have recovered, the bleeding has stopped and the tumor has almost entirely disappeared. One such case has been treated within the past six months with complete recovery. The dosage in these cases is the same as used in bleeding of the menopause, 1500 milligram hours. We do not advise radiation of fibroids in younger women because the necessary dose will produce an artificial menopause. For these we resort either to myomectomy or hysterectomy with preservation of the ovaries. In a few cases with advanced anemia from bleeding we have had recourse to smaller doses of radium to control the bleeding and in some cases of tuberculosis associated with a bleeding fibroid we have not hesitated to produce an artificial menopause.

6. *Uterine Polyp.* Uterine polyps are treated by surgical removal. If in older women, we apply radium to the source of the polyp for 600 milligram hours to prevent recurrence. In younger women this is not done unless recurrence takes place and at the second operation radium is applied for about 300 milligram hours. This

has been quite successful in the prevention of recurrence of polyps.

7. *Endocervicitis.* We have applied radiation in obstinate cases of endocervicitis in the past in a few women of middle life or past with only fair results. We prefer to use cauterization or some form of surgical procedure as our results have been much better.

8. *Carcinoma of the urethra and vaginal wall,* Carcinoma of the urethra and vaginal wall except as secondary growths are quite rare and the only ones that were primary have been treated with radium along the lines of the same dosage as is used on superficial epitheliomas, but with rather discouraging results.

Uterine bleeding in one way or another constitutes a fairly large percentage of all gynecological conditions. Any one who undertakes to adequately treat this condition must of necessity advise radiation with considerable frequency and after ten years of experience in treatment of these conditions in which radium is indicated, the speaker would be at a loss to know how to adequately and honestly treat many of these cases were not this type of therapy available. It is surprising how little understanding many men of large surgical experience have about the indications and results from radiation in gynecological conditions. Some are even avowedly opposed to its use under any condition. Another reason is, to emphasize the fact, that many of these cases with carcinomata of the uterus, particularly of the cervix where diagnosis can be easily made at a relatively early date, have never been examined but have been treated for months by medication, the patient finally seeking radiation of her own accord. There seems to be a certain reticence on the part of many women to report a condition until it is very evident that something is radically wrong. From these of course the medical profession is exonorated.

The mortality of radiation is practically nil. The hospitalization is brief and where indicated its use is equal to or superior to surgery and it is economically possible for many people for whom other forms of treatment are prohitive on account of the cost alone.

DISCUSSION: *Dr. John F. Kuhn,* Oklahoma City.

I am scarcely prepared to discuss this paper. I am sorry I did not get to read it before Dr. Fite read it here, so I will have to beg your indulgence just a little bit. I do not know how I can directly and definitely discuss it because I just heard the last part; I got in just as he was discussing the matter of functional bleeding of the uterus. Anything that has gone before that I don't know.

I am going to take exception to the statement that he made that he would use radium in functional bleeding of the uterus, because it is a well known fact that hypertrophy of the endometrium is an unusual condition and is not the result of functional disorder. Hyperplasia of the endometrium is a common thing and this is distinctly the result of some ovarian function in which the chain of endocrine glands are generally involved. I like to consider two distinct glands as a unit, and therefore I speak of the pituitary-ovarian chain, not disregarding the rest of the endocrine system, particularly the thyroid. Now then, the proper treatment in this case is not a radiation. We have here ovaries that need the proper kind of stimulant, that should not be abused, that should be stimulated in the proper direction. This type is the type in which proper and careful curettement should be done repeatedly until there has been a proper stimulus to the ovary and proper resume of the endocrine chain. This is the thing that occurs in young women in the adolescent years, probably up to and occasionally in the early twenties. These patients must be kept under careful observation throughout adolescence and maturity and under proper, careful, general medication. It is true that frequently these girls will require repeated transfusions and it has been our practice for years past to use intramuscular transfusions for two reasons, first, to aid in the stoppage of hemorrhage and to aid in stimulating the harmonic function, rather than one massive intravenous injection. I stop the hemorrhage when it has been excessive by preliminary curettage. We put the patient at absolute rest for forty-eight to seveny-two hours and then we regulate a very, very mild amount of exercise if the bleeding has stopped and then we put them on the proper functional treatment. Now I think that is as far as I ought to go on that particular subject. Dr. Fite mentioned it as only one of a large group of treatments.

Now, the use of radium in the past few years in the hands of really good men who

know how to use radium has practically put the scalpel on the shelf as far as carcinoma is concerned, carcinoma of the uterus, and particularly now in the early phases it is definitely cureable by the proper use of radium. The unfortunate part of it is that we see these patients so extremely late that they are often in the hopeless, far advanced type. Primarily the treatment should be X-ray in order to block out, so to speak, the lymphatic areas and after the initial result with properly given deep therapy, then we should use radium. I should like to qualify the statement regarding proper deep X-ray therapy. Remember I advocate the combination in these late stages. I think that just as soon as the profession as a whole and the X-ray therapists particularly, come to the realization that the normal tissue cells are rather easily and quickly sensitized, then we will make a little further progress. First of all each patient should be properly and carefully studied. For this purpose the patient should be hospitalized, careful blood studies made, and blood transfusions given if the blood stream is very low, and the patient kept at absolute rest. An estimate should be made as to the extreme doses she can stand in order not to test her with small doses. Small doses of deep X-ray therapy will do nothing but sensitize the structures so that you can't give the big doses, therefore it should be just as extreme as possible to give this patient. The tumor cells very rapidly become radio-resistant and the normal cells become radio-sensitive and it is necessary to complete your treatment in a short time. The patient can rarely stand three extreme series without being harmed. The initial series should be as extreme as they can stand and the next treatment should be radium, unless it be so far advanced that you cannot give radium. Now then, so far as degenerative fibroids are concerned, here again I wish to take issue with the essayist. In fibroids in the process of degeneration, the degeneration is either the result of infection or some change in the character of the tumor itself. If there are degenerated cells with the growth it would be foolhardy to introduce radium unless you were sure that there was an absence of toxins. We have had some very unfortunate instances with toxemia of the patient in which it was impossible to determine that they had infections. We have had very little success in causing fibroids to disappear with the use of radium and I still believe that in the presence of fibroids with considerable hemorrhage in women past middle life or past the childbearing age, that the proper thing is to prepare her for operation and leave off the radium.

Dr. J. F. Percy, Los Angeles.

I am very much interested in Dr. Fite's paper. I hear a great many of them and I have my opinion about them. Anyone that says that you can't cure carcinoma of the cervix with radium is going far afield, because they are cured. But the thing that my radiologist friends don't say anything about and that Dr. Fite hasn't said anything about and all the radiologists in this country so far as I have been able to learn say nothing about, is the morbidity they get following the use of radium in the cervix. Now that is a very serious question and we also say, and the radiologists say that if a man knows how to use it you won't have anything of that kind, and I want to say that isn't true. You send in each shot and you don't know what it is going to do, and as mentioned in the doctor's paper you may get your effects long after that. You may get your erythema from the radium 18 months afterwards, you don't know how long, you may get it sometimes many years after, even fifteen years afterwards. Now as I have said, I see a great many of these cases and we have a very well known and active radiologist on our cancer commission at the County Hospital in Los Angeles and we usually don't speak very kindly to each other during our work on the commission but we have always sworn that we would forget it by the time the sun went down, but we have seen a lot of bad, bad results and I get them after these gentlemen get through with them. I want to tell you if you have applied radium and X-ray you have shot your long bow. If they start in again they are as a rule, gone. To illustrate, last March a year ago we had a patient come in with carcinoma of the cervix, an especially intelligent woman for that kind of clinic. I didn't believe she had carcinoma of the cervix and my radiological colleague thought she had, so we took a biopsy and they said it was carcinoma, class three. He said to me, "Percy, I wish you would let me have this case. Give me one that I can cure because I get so many of these bad ones." I said, "all right, take her." The doctor I am criticizing is a good man but he believes in seven thousand milligram hours. He doesn't give

fifteen hundred or two thousand or three thousand. And then he gives the deep therapy afterwards and they are sicker than dogs afterwards; you never can get them to consent to having anything like that again. In October this woman came back and she had a frozen pelvis. She really showed she had cancer then. There was no question about the diagnosis. She begged me to operate, I said, "if I operate everything will slough and all your inwards will be out through your vagina, and it isn't a very pleasant prospect for you and it won't do any good," but she begged me to operate and she came back and begged. I opened her abdomen, dilated the vagina with my vaginal dilator and put in the water cooled speculum and with my assistant holding the uterus shoved that cautery up to the fundus and cooked that whole field until he couldn't stand it any longer with medium weight rubber gloves on. It usually takes twenty to thirty or forty minutes until he begins to dance on account of the heat coming through the uterus and then he directs me to shove the cold-tip cautery out into the broad ligaments. Two weeks later my resident telephoned me and said, "I wish you would come over. The nurse found practically all the small intestines of Mrs. Blank out in the bed and I want you to come over." I said, "no, I won't. You scrub up your own hands and put on your rubber gloves and put your clean towels around her and don't put any antiseptic on the vaginal walls or intestine, but pack that intestine up the vagina and hold it there with iodoform gauze. Be careful not to shove the iodoform gauze up to her diaphragm, and then sew up the vulva to keep that iodoform in there. Leave a space about one-half to three-quarters of an inch below for drainage." Why didn't I go over there? Because I have learned one thing that I don't think our radiological friends are on to—you can't infect these cases with a cautery. I have tried to take out some of those rectums due to radical burns. We had four new cases in one day in our clinic, and in trying to take out these rectums by the Miles operation with my cautery, sometimes because of the friability and fragility of these tissues I have shoved my fingers through and immediately the belly would smell like a country backhouse. I closed my first case up and the next morning she complained bitterly because she hadn't had her breakfast. She had no qualm of any kind, no elevation of temperature, no pulse elevation or anything, and I have done that a number of times since and nothing happens to them in the way of peritonitis. Another thing, talking about morbidity, if I should mention the name of a certain radiologist all of you would know him. He is known everywhere in this country and has an international reputation. He is known everywhere for this question of treating fibroids but he treated a fibroid with all his skill and what happened? He burned off the whole lower part of her abdomen and it went through the abdominal walls and fortunately for this woman the small intestine involved was low down. She was in our hospital and she was one of our show cases. I used to take visitors to see her. She had five holes in the small intestine and the small intestine had opened up. There was the mucous membrane with its peristalsis and she had a hole above the pubes about one inch in diameter and you would suck out with a catheter and syringe her urine, and this man tried to sew her up. He tried to do a plastic and pull that together, and you can't do a plastic on that kind of a patient. Your radium and X-ray won't let your tissues repair. There is a way of repairing it but I won't go into that. I am going to stick to this morbidity side of it. In Europe they are beginning to talk about the morbidity in their journals. Ninety-five per cent of everything I see in the way of cancer has had X-ray and radium and out of that mess I get twenty per cent that live over the five-year period without morbidity because the cautery destroyed the progressive, chronic condition that is the result of X-ray burns. The two last reports of the Royal Radium Commission of England, I have them with me and those of you who want to see them can see them, say it is not settled yet as to the value of X-ray and radium and they are not saying anything about it and make no claims for it yet. Everywhere in the journals you see these marvelous reports of what they are doing with radium and X-ray in cancer of the cervix. Now in contrast with this, let me relate something.

Years ago when A. J. Ochsner, whom so many of you know, came down to the operating room of the Presbyterian Hospital and found a note pinned to the sheet of the operating table in Dr. Sims' handwriting notifying him his services would not be required any longer after that clinic, that was the foundation stone of that marvelous clinic that Ochsner built

up in the Augustana Hospital. One of the first cases that came to him was a woman who had been put through all the clinics in the country and pronounced hopeless, but with that clear vision based on thinking in relationship to his case, he told her, "you come back the next clinic day and I will see if I can't do something for you." He bought a charcoal stove and bought two large soldering irons about two and one-half inches in diameter and when she came back the night before she was given the ordinary care, and in the clinic the next morning he put that woman under ether and dilated the vagina with Sims' retracters, and when this cautery, these soldering irons in this charcoal stove were at a dark cherry red he took one of those irons out and shoved it into the vagina to the vault as far as he could send it and he left it there until it stopped simmering, and when it stopped simmering he took it out and repeated the process with the second iron. Six months before Ochsner died I made rounds with him at the Augustana Hospital and I said to him, "what became of that woman you treated with the soldering iron and the charcoal stove when you first established your clinic?" He laughed and said, "oh the anniversary of the day I operated her she returned for seventeen years and after the seventeenth year I lost track of her, and she was perfectly well."

Now we have gotten so terribly scientific that we have gone off after an agent that we know nothing about. I heard one of the best pathologists on the coast say in a meeting not long ago that if radium and X-ray had never been used in cancer the sum total so far as this agent is concerned would have been benefited. I remember my first statement that there are cases that are cured, but I want you to understand that there are other methods that have back of them centuries and centuries of experience. We have found out how to use them. The old fellows back there in the fourteenth and fifteenth centuries knew how to use them. A lot of our surgeons have been overwhelmed and overshadowed with X-ray and radium. They used to in late cases with hemorrhage and stink and cachexia shove in these soldering irons in the vagina with the idea of palliation and some of them would get well. It is a more or less moral obligation not to use the X-ray and radium. These patients will live longer without than with it, and in attestation to that Ochsner left a record of sixty-two per cent of proven cases of carcinoma that lived over the five-year period without morbidity after treatment with the cautery.

Dr. E. S. Lain, Oklahoma City.

This reminds me of the debates we used to have where we would debate on anything. When we have reached a certain age and have been working for a number of years, then there is no tool but that with which we have been working. It seems like ego on my part to discuss the discourse of so eminent a man as Dr. Percy. He has referred to one particular method of treatment which has blessed the world, but I must say that we have not observed here the pathological and clincal effects of radium of which he speaks and they seem to be having bad results in that particular locality, although I am sure they are good men out there. He is speaking, I assume, of cases of surgery and everything else we have today. I know of but few men who give seven thousand milligram hours to the cervix. The average number is two to four thousand. I know we used to years ago, and I am afraid you are quoting old statistics. I have read the paragraph to which he refers on the Commission. It is my experience that radiation therapy has so far gone through periods of enthusiasm and periods of depression, nevertheless, if used by experienced men, X-ray and radium have no rival in the treatment today of malignant diseases.

Dr. R. L. Murdock, Oklahoma City.

Dr. Fite has said that proctitis sometimes comes on eighteen months after radiation. In just the last year our radiologists are getting where they apply radium in such a manner that we do not get them much any more. There are some horrible examples however. Just recently I happened to have had a case which was the worst in its nature I have sever seen, and by coincidence this woman in November of 1932, had radium applied to the cervix in Los Angeles. She got to our clinic in Oklahoma City on November 29, and was having lots of anal and rectal pain then. The cervix looked very good according to our gynecology man. She went along with a lot of rectal pain. The proctoscope showed minute red patches. She passed a little blood now and then and the rectal wall would bleed in slight touch. She went along that way for several

months in which we saw her a number of times and she had nothing but this congestion, so to speak, of the rectal wall until when examined on the 16th of March, which would have been about five months after her application of radium in Los Angeles, she had a smooth constriction of the rectum, a uniform encroachment on the lumen of the rectum very similar to our chronic inflammatory strictures of the rectum. But it continued to block on down until she had to have a colostomy for extreme obstruction on April 9. That is the only case that we had where the cancer was eradicated and with this fibrosis and peri-rectal fixation. Inside her abdomen on colostomy there was no glandular involvement; there was nothing but a fibrosis and fixation about the rectum about the level of the cervix. That is just one case. The Mayo Clinic reported their experience over a period of nine years and in all cases of application of radium to the cervix, over two thosuand, they had only forty-eight cases in which there was any visible sign of proctoscope in the rectum; of those only twelve had any ulceration at all, so the conclusion is that radium is being used by people who are familiar with it. It is justified and indicated to use it, and with the exception of a few horrible examples rectal symptoms are not being severe.

Dr. R. L. Meyer, Oklahoma City.

I want to say something in support of what Dr. Fite said about menorrhagia. I have seen many cases in which curettement after curettement was done and the hemorrhage stopped only temporarily, on the other hand with the application of radium in a large percentage of cases with small doses, the result has been accomplished and accomplished fairly quickly. In other methods there is usually more or less invalidism over a considerable period of time, and certainly radiation in my experience in such cases has been very effective. Occasionally you have to see it a second time. In regard to fibroids, I am surprised that Dr. Kuhn has not seen better results. If you use radium you have to be more particular about the question of infection. X-ray probably is a little safer. I have used it in a good many cases now and have had no untoward results and in every case the fibroid has gradually shrunk down until in six months or a year it was either barely palpable or not palpable at all. I believe radiation is more applicable in a greater percentage of cases than surgery is. To touch another point, I hardly think anyone really proves anything by taking unusual examples of what *X*-ray and radium does. Personally I have seen very few of such cases. There is no doubt but radium and X-ray can react on some peculiar condition and get results you would not ordinarily experience. When radium and X-ray are used intelligently and carefully the untoward results you are going to get will be very few in proportion to the palliation and cure you will get which could not be obtained by any other method. I think one should be always careful not to try and condemn anything by picking out horrible examples where for some reason there was an unexpected result. We do get proctitis in cervical carcinomas; occasionally we do get some result, but I believe these results are justified in the face of the cures we are getting all over the country.

Dr. Fite:

Concerning the treatment of these cases of functional bleeding, we do not use it except in the late twenties and thirties and only after we have tried other measures first, and radium is not always successful then, but it often is. We have used it in cases of tuberculosis in which we wished to produce menopause. As to Dr. Percy's cautery, I have never used it so I can't compare it at all with radium. So far as I am concerned, radium has been a Godsend to me in the treatment of carcinoma of the cervix. I have visited a great many places in this world and no places where everybody believed the same way. With reference to radium in degenerated cases of fibroid, I have only used it in two cases in which we could not find a donor and in which to my surprise the fibroid entirely disappeared within about three months. We broke into the fibroid so that there was adequate drainage from the tumor. You can discuss these things interminably, but in the discussion of proctitis and inflammation of the bladder that sometimes results, we have had more trouble with cystitis than proctitis and it is sometimes fairly troublesome. I think it is because you can pack the rectum further away from the radium than you can the bladder. All of these cases have cleared up in a few months and we have never had any permanent untoward results.

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McAlester, Oklahoma.

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Medical Arts Building, Tulsa, Okla

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, 203 Ainsworth Building, McAlester, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmancy of the A. M. A., will not be accepted.

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It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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EDITORIAL

As I assume the duties of Secretary-Treasurer-Editor it is with many misgivings, for the work is largely new to me, and it will indeed be difficult to maintain the high standard set by the late Dr. Thompson, who developed such wonderful efficiency in his twenty-four years of service.

It will be my purpose to serve organized medicine in Oklahoma to the very best of my ability. I realize that in the Journal I speak for all the members of the State Association, and when I make mistakes I will welcome any constructive criticism you may care to offer. Of one thing you may be sure, that I will always be squarely behind the profession in keeping our position clean, clear, ethical and free from any taint of compromise.

Your co-operation and suggestions are solicited and with this help I pledge my best effort to maintain this office and the Journal on the high plane it has attained under the direction of my distinguished predecessor.

—*L. S. WILLOUR.*

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RECOMMENDATION FOR RELIEF FOR THE INDIGENT SICK

At the request of Governor Murray a meeting of the Council of the State Medical Association was held at Oklahoma City, October 31, with a representative of the Governor, Mrs. E. McKinnon, State Supervisor, Social Service, under the Federal Emergency Relief Administration, present at the meeting. We were asked to set up a schdule of fees that would be paid by the Federal Emergency Relief Association for the care of the indigent sick in the various counties of the State. The following schedule has been submitted, this schedule to be subject to a 50% reduction:

Visits	$ 3.00
Office visits	2.00
Obstetrics	25.00
Mileage (per mile)	1.00
Fracture Schedule	
Skull	50.00
Jaw	25.00
Humerus	50.00
Radius	25.00
Ulna	25.00
Radius and Ulna	35.00
Pelvis	50.00
Femur	75.00
Tibia	35.00
Fibula	20.00
Tibia and Fibula	50.00
Fingers	10.00
Toes	10.00
Clavicle	25.00
X-Ray	
Hands and Feet	5.00
Arms and Legs	10.00
Hips	15.00
Shoulders	10.00
Pelvis	15.00
Spine—Ap. and Lat.	25.00
Chest—for ribs	10.00
Operative Fees	
Laparotomy	$100.00
Brain Injuries	100.00
Empyema	50.00
Vaginal Drainage	50.00
Amputations	
Major	100.00
Minor	25.00
Anaesthesia	
Spinal or General	12.50
Tonsillectomy	25.00

It was further recommended that this service be rendered only to those registered for relief and as long as they remain on the relief rolls. This schedule and arrangement to exist only during the period of the emergency. That the family physician-patient relation be maintained.

When no physician is especially desired the doctors are to be called in rotation from a prepared roster of the members of the component County Medical Societies, using, of course, the most accessible physician in the rural communities.

The above schedule, with 50% reduction, was made with the approval of the Federal Emergency Relief Association representative and will be forwarded immediately to Washington for final approval.

Of course the Council could not pledge the physicians of the State to do work for the above mentioned fees, however, it appears to be the best deal that can be made and we hope that our action will meet with the unanimous endorsement of the profession and that the doctors, as usual, will carry on and do their part to alleviate the suffering of our indigent sick.

THE COUNCIL

Called meeting of the Council by the President, Dr. T. M. McCarley, at Oklahoma City, October 8, 1933. Present:

Doctors:

T. H. McCarley, President, McAlester.
LeRoy Long, President-Elect, Oklahoma City.
L. S. Willour, McAlester.
F. M. Adams, Vinita.
J. S. Fulton, Atoka.
S. A. McKeel, Ada.
O. E. Templin, Alva.
A. B. Chase, Oklahoma City.
D. Long, Duncan.
W. A. Howard, Chelsea.

Dr. W. A. Howard was appointed to act as Secretary.

The President appointed the following as auditing committee to audit the books of Dr. C. A. Thompson, Secretary-Treasurer Editor:

Doctors: J. S. Fulton
S. A. McKeel
O. E. Templin

Report of the auditing committee was made to the Council as follows:

Dr. Fulton moved that the report as furnished by the certified accountant, Charles A. Wright, be accepted.

Seconded by Dr. A. B. Chase.

Motion carried.

Dr. Templin moved that the Association pay Dr. C. A. Thompson's estate a month's salary for October, 1933. Dr. Adams seconded the motion; carried.

Nominations were in order for Secretary-Treasurer-Editor to fill the unexpired term of Dr. C. A. Thompson, deceased. The chair rules upon section eight of the Constitution and By-Laws as follows: "that this section means unexpired term to end December 31, 1935."

Dr. Fulton nominated Dr. L. S. Willour for Secretary-Treasurer-Editor.

No other nominations being made, Dr. Templin moved that nominations close, and that Dr. L. S. Willour be elected by acclamation. Motion seconded by Dr. Adams; motion carried.

Dr. W. A. Tolleson, Eufaula, was appointed to fill the unexpired term of Dr. L. S. Willour, as Councilor of the Ninth District.

Motion to adjourn by Dr. Templin; seconded by Dr. Fulton; carried.

W. A. HOWARD,
Acting Secretary.

THE HUMAN HEART

We are under the impression that deaths from heart diseases of all kinds is statistically becoming overloaded. Is this due to more correct diagnosis, or are we terming things heart disease which are something else? There are quite a number of sudden deaths in the world today and most of these are reported as due to heart failure. We have the feeling that a goodly number of such catastrophes should be diagnosed cerebral hemorrhage, all of which leads one to feel that our laws should be fixed, making post-mortems mandatory in all sudden deaths.

—Fred G. Dorwart, M.D.

DIABETES MELLITUS

Of all sneaking diseases, diabetes mellitus leads the field. To reach the age of fifty or thereabouts and have sugar found in your urine must take all the joy out of living. Good-bye biscuits, steaming baked potatoes, rice that does not stick together, baked beans, cooked for twenty-four

hours, corn on the cob, and what not, and when one has to say such good-byes it is most likely felt that the end of living is next door.

Why then can't we, as physicians, make more efforts to secure a better living for the poor old diabetic? Shouldn't the diabetic be taught to so judiciously use insulin that that baked potato can be eaten when he so desires it?

—Fred G. Dorwart, M.D.

DR. C. S. BOBO—A BIOGRAPHY

Doctor C. S. Bobo was born February 29, 1856, in Perkins county, Alabama. While still an infant his father moved into Mississippi, establishing himself on a farm and remaining there until after the Civil war; or, about 1873, when he moved over into Wise County, Texas. Here the doctor worked as a farmer until he left for college which was at Louisville, Kentucky. Graduating with honors from that institution in the year 1881. He then returned to his home and began to practice medicine. Three years later he was married to his present wife who was then Miss Ada Crowe.

During his seventeen years of practice in that community, Doctor Bobo was quite active in the Northwest Texas Medical Society. He served as its president for one term. He was, also, active in the Texas State Medical Association, having a record of missing only two meetings in his seventeen years of connections.

In 1889, Dr. Bobo came to Oklahoma Territory. Settling in Norman, his present home. He soon affiliated with the Oklahoma Territory Medical Association, serving this society in many capacities, but in his outstanding position, as a delegate, he was instrumental in bringing the two Oklahoma groups together. In 1907, Doctor Bobo was elected the president of the Oklahoma State Medical Association, at Shawnee.

Doctor Bobo held the position as Dean of the Medical School at Norman. This position he held up to the time of the consolidation of the departments of medicine of the two schools at The University of Oklahoma and The Epworth University, located at Oklahom City.

Dr. Bobo has the unique distinction of having signed the diplomas of the first graduating class from the University of Oklahoma Medical School.

Doctor Bobo has been the local surgeon of the Santa Fe for the last thirty-four years and the surgeon for the Oklahoma Railway since its establishment in 1912. He has, also, served as consultant to the Central State Hospital in Norman since its establishment.

He is still an active practitioner at Norman and an ardent member of the County society, and attends the state meetings with great regularity.

Editorial Notes—Personal and General

DR. AND MRS. N. H. LINDSEY, Pauls Valley, attended the Century of Progress Exposition in October.

DRS. J. L. HOLLAND AND W. D. HAYNIE, Madill and Kingston, respectively, attended the meeting of physicians.

DR. E. P. MILES, Hobart, underwent an operation in the Border-McGregor Hospital in October, and is reported improving.

DRS. WALTER HARDY AND J. LLOYD COX, Ardmore, attended the International Clinics in Cleveland, Ohio, in October.

DR. H. F. VANDEVER, Enid, has returned from Kansas City, where he attended the conference of the Southwest Clinical Association.

DR. F. W. EWING, Muskogee, attended a medical meeting in Kansas City, the latter part of October, and then went fishing for two weeks in Missouri.

DR. AND MRS. J. E. HARBISON, Oklahoma City, have returned from Chicago, where Dr. Harbison attended the meeting of the American College of Surgeons.

DR. G. N. BILBY, Oklahoma City, was designated by Governor Murray as Oklahoma's delegate at the National Child Health Recovery Conference held in Washington.

DR. AND MRS. F. W. BOADWAY, Ardmore, attended the Century of Progress in October. Dr. Boadway also attended the International Clinics in Cleveland, Ohio.

DR. AND MRS. FRANK McGREGOR, Mangum, have returned from Chicago, where they attended the Century of Progress Exposition and the American Legion National Convention.

DR. W. C. VERNON, Okmulgee, qualified in the preliminary contest of the state bridge matches which was held in Tulsa, October 9th. This entitled Dr. Vernon to enter the semi-final contest which was held October 22nd, in Enid.

PONTOTOC COUNTY MEDICAL SOCIETY held a meeting September 7th. Dr. C. P. Bondurant, Oklahoma City, lectured on "Common Skin Diseases," illustrating with lantern slides. Dr. Dick Lowry, Oklahoma City, also lectured.

MRS. W. T. SANGER, Press Chairman of the Woman's Committee for the meeting of the Southern Medical Association, at Richmond, extends a special invitation to the doctors' wives, and promises a very interesting and entertaining program.

DR. J. A. SMITH, head physician of the Chilocco Indian School, Ponca City, has been transferred to Yakima, Washington, and Dr. Tirador came from the Omaha and Winnebago Indian reservation at Winnebago, Nebraska, to take charge of the Chilocco School.

DR. SAM A. McKEEL, Ada, Councilor Seventh District, Oklahoma State Medical Association, made an official visit to the Seminole County Medical Society in September. He addressed the society on "The Basic Science Medical Law." He was accompanied by Dr. E. A. Canada.

DR. AND MRS. W. ALBERT COOK, Tulsa, have returned from Lake Forest, Illinois, where they have been the guests of their daughter, Mrs. Colin Leiter Campbell and Mr. Campbell. Dr. and Mrs. Cook went to Lake Forest especially to make the acquaintance of their granddaughter, Alison Campbell, who arrived on September 28th.

DR. HENRY TURNER, Oklahoma City, was a guest of the Dallas County Medical Society September 28th, where he spoke on "The Ovary and Its Incretory Interrelationships." He also delivered an address before the Kansas City Southwest Clinical Society at its Fall conference, October 2nd, on "The Clinical Diagnosis and Treatment of Pituitary Syndromes."

REPORT OF ANNUAL CONFERENCE OF SECRETARIES

As Dr. W. Albert Cook, Tulsa, was in Chicago at the time of the Secretaries' meeting of the American Medical Association, he was authorized by the Secretary to represent the Oklahoma State Medical Association. He submits the following report:

The Annual Conference of Secretaries of Constituent State Medical Associations is very beneficial as the editors and secretaries get together and discuss their problems and none of them return home without having a broader and better view of medical conditions over the whole United States.

At the opening meeting, Dr. Dean Lewis, President of the American Medical Association, made a talk on the "Quality of Medical Care," which, boiled down, reverts to the saying which has been prevalent forever, there is always room at the top. While the quality of medical care has not depreciated materially, patients are demanding more all the time, but State medicine does not offer any hope for an improvement of the quality of medical care as it would be more on a commercial basis and the personal equation would not enter into it as it does in private practice.

Dr. F. C. Warnshuis of Grand Rapids, Michigan, gave a report of "The Michigan Survey," with its findings and application, which shows that the Michigan physicians are alert as usual and are doing a great deal for organized medicine.

Dr. Walter L. Bierring, President-Elect of the American Medical Association, spoke on the "Social Dangers of the Oversupply of Physicians," and warned us of the dangers of a consequent lowering of ethical standards. Dr. Bierring said that the overcrowding in the medical profession had increased the evils of fee-splitting, unnecessary services, padding of bills, illegal operations and the employment of "runners." As a remedy he advocated requirement of a non-professional degree for entrance to all medical schools.

The recent proposal of the federal government to pro-renumeration for physicians who care for patients unable to pay fees themselves was discussed and generally approved by the delegates. Dr. Austin A. Hayden, President of the Chicago Medical Society, reported that the Chicago physicians would decide at their next meeting whether or not they were in favor of accepting the government fee.

The second day was devoted to extensive reports on "Medical Defense," which was ably presented by Dr. J. E. Tuckerman, Cleveland, Ohio. It was surprising to learn the status of progress made by physicians in some of the states. The fraternity is so solidly organized in some places that a reputable attorney will not take a case against a member of the state and county society. (I am inclosing a copy of the Rules and Regulations of the Ohio Society, so that our Secretary will have it on file for the benefit of our members and medical defense committee).

Legal problems interesting the profession were thoroughly discussed by Dr. W. C. Woodward, Director of the Bureau of Legal Medicine and Legislation of the American Medical Association.

Dr. W. C. Comfort of New Haven, Connecticut, made an extensive report on the work of the committee of ethics and deportment of the Connecticut State Medical Society.

W. ALBERT COOK, M.D.

RESOLUTION PASSED BY THE MUSKOGEE COUNTY MEDICAL SOCIETY

Whereas, our friend and fellow member, Doctor Claude Allen Thompson, has been suddenly called from us, we, the committee of the Muskogee County Medical Society, wish to present the following resolution to you and Society in general session, this 9th day of October, 1933.

First: To express our deep personal feeling of the loss of a valued friend, so well known and greatly appreciated by each and every member of this Society.

Second: That in the passing of Doctor Thompson, the entire system of Organized Medicine, of which he was a leading factor has suffered an irreparable loss.

Third: Be it resolved that the Society extend its sincere sympathy to the members of his family, and his legions of friends.

J. G. RAFTER, Chairman
J. T. NICHOLS
S. J. FRYER

ABSTRACTS • REVIEWS • COMMENTS AND CORRESPONDENCE

UROLOGY and SYPHILOLOGY

Edited by Dr. S. D. Neely, M.D.
Muskogee, Okla.

Diagnosis of Gonococcus Endocarditis. Solomon, Hurwitz, Woodall and Lamb, Archives of Internal Medicine, July, 1933, Page 1.

They report in detail a case of Gonococcus Endocarditis. The diagnosis of acute vegetative endocarditis was made clinically and proven at autopsy. The organism grown from the blood stream and from the vegetation on the aortic valve postmortem was identified as a gonococcus by its morphologic and cultural characteristics, fermentation reactions, agglutination, percipitin and complement fixation reactions. This case had evidence of respiratory infection antepartum. Three days after delivery a cough developed, productive, a grayish mucoid material, later frankly bloody, temperature 101, possibly bronchopneumonia, which subsided after a week. Patient's pulse rose then to 140 temperature, continued high, and definite evidence of endocarditis developed. From the first there was a complete hemiplegia, spinal fluid blood tinged, and with 4000 white blood cells to c.c. No organisms found. Blood culture showed organism as gonococcus.

Treatment of Neurosyphilis. H. H. Hopkins, Archives of Internal Medicine, July, 1933, Page 66.

The author discusses six types of neurosyphilis. 1. Early neurosyphilis. 2. Diffuse late neurosyphilis. 3. Dementia paralytica and the tabetic form of dementia paralytica. 4. Tabes dorsalis. 5. Optic atrophy and vascular neurosyphilis. He also gives the results favorable and unfavorable according to six types of treatment. 1. Poor treatment, patients receiving less than one year of treatment with the arsphenamines, heavy metals and tryparsamide. 2. Routine treatment, sources of arsphenamine product alternating with courses of mercury or bismuth with large dosages of potassium iodide were given for at least one year regularly. 3. Intensified routine treatment. This group was given larger dosages, and longer courses, and in most cases the old arsphenamine 4. Routine treatment to which was added a variable number of intradural treatments by Swift Ellis method at intervals of at least two weeks. Used mostly for tabes and optic atrophy. 5. Routine treatment and tryparsamide. Tryparsamide was used extensively in late neurosyphilis of all types, except optic atrophy. Given in 2 to 3 grams at weekly intervals for from ten to twenty injections, alternating with courses of bismuth or mercury. 6. Routine treatment and malaria, used largely in dementia paralytica, most received routine treatment and many tryparsamide before malaria.

In conclusion he states that in early neurosyphilis the best method of treatment was an intensified form of routine antisyphilitic treatment with arsphenamine. In diffuse late neurosyphilis routine antisyphilitic treatment was much inferior to treatment with arsphenamized serum subdurally administered, tryparsamide of malaria. In dementia paralytica and taberic form of dementia paralytica, malaria was the treatment of choice. In tabes best results were obtained with malaria, although those treated with tryparsamide did almost as well, and both types were superior to routine treatment. In optic atrophy, subdural injections of arsphenamized serum was successful in arresting the process in numerous cases in which it was advancing in spite of acute routine treatment. In general the correlation between the clinical and serologic improvement is roughly proportional to the duration and type of pathological involvement.

Treatment of Prostatitis By Injection. Owsley Grant, Journal of Urology, June, 1933.

The author reviews the different types of accepted therapy of treating prostatitis, massage, diathermy, urethral lavage, etc., and describes a method of therapy of direct injection of the prostatic tissue with a 1% mercurochrome solution. A 6-inch twenty-two guage needle is used, and guided with the finger in rectum it is introduced through perineum into the prostatic tissue, and from 10 to 20 c. c, of solution injected directly into the gland substance, and injecting some solution into tissues as needle is withdrawn. Four hundred cases have been so treated, and he has not had one untoward result. These cases so treated have been very gratifying to the author in the quickness these cases become pus and organism free, also from the feeling of discomfort in perineum and sexual symptoms.

A New Method For The Management of Gonorrhea. P. A. Clements, British Journal of Venereal Diseases, June, 1933, Page 147.

The author describes a treatment of gonorrhea by an ecto-antigen prepared by Dr. Oliver of St. Thomas Hospital, this antigen being on the principle elaborated by Dimond of the Royal Herbert Hospital, Woolwich, some years ago. It is an especially prepared vaccine of the gonococcus which is described in another article by J. O. Oliver in the same journal, requires special technic to prepare and is very time consuming. The author injects it in the groin or as close to the seat of infection as possible. There is some local reaction as erythema, and possibly focal. General reaction may be rise in temperature. Care must be administered in not injecting this vaccine in veins, as he believes that it will cause thrombosis. He states that the best hopes of curing gonorrhea lies in adequate drainage, and the raising of the resistance of host to the highest possible level. The article is well illustrated with charts.

Non-Gonococcal Urethritis. A. H. Harkness. British Journal of Venereal Diseases, June, 1933, Page 173.

The author discusses the many types of non gonococcal types of urethritis, mentioning certain foods, as asparagus, cress, and strawberries, certain drugs as cantharides, turpentine, etc., the urethritis due to the three stages of lues to soft sores, parasitic discharges with protozoa, mentazoa and fungi in the discharge. Non-specific organisms also produce ure-

thral discharge, chief among which are staphylococci, diptheroids, micrococci, streptococci and diplo-bacillus. Aseptic urethritis he mentions and in this only epithelial cells and pus cells are found in the discharge, cultures always sterile. Under urethritis due to trauma, he mentions promiscuous sexual intercourse, use of too strong solutions in urethra, instrumentation, and in-dwelling catheters. Intra-urethral herpes he mentions. Stricture is a common cause of urethral discharge. Descending infections from upper urinary tract. Urethritis occurs during the course of some systemic diseases, as malaria, gout, typhoid fever, influenza, etc. Urethrorrhoea, spermatorrhoea and prostatorrhoea also will cause non-specific urethral discharges.

Perforation of Bladder Wall of Pelvic Abscesses. D. P. Fagerstrom, Journal of Urology, August, 1933, Page 207.

The author reports two cases of bladder perforation by pelvic abscesses, one in female when the bladder was perforated by chronic parametral abscess which developed subsequent to septic abortion. The other in a male in which he believes the bladder was perforated by pelvic abscess originating at the site of punch operation done some six weeks previously. In conclusion he states that pus collections may remain in the pelves of either sex for prolonged periods of time without giving definite evidence of their presence, and these abscesses may erode and perforate the bladder wall. In the female the most common underlying causes are pus tubes and parametral infections, in the male the original focus is in chronic diseases of the prostate and seminal vesicles. Diagnosis is based on history, the pelvic pathology, finding by cystoscopy of fistulous opening in bladder wall, and the demonstration of pericystic abscess by X-ray.

TUBERCULOSIS

Edited By
L. J. Moorman, M.D.
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The Duration of Life in Pulmonary Tuberculosis With Cavity. Harry L. Barnes and Lena R. P. Barnes. Amer. Rev. of Tb., Vol. 18, Page 412-424, 1928.

In reviewing the statistical data presented below by these authors, one is struck with the distressing prognostic outlook accompanying cases of pulmonary tuberculosis having tissue destruction to the point of demonstrable cavity formation.

With such reports and observations as these, it has become evident to those working with tuberculosis patients, that the prognosis of cavity-cases can only be rendered more hopeful by measures designed to bring about closure of the cavity, approximation of its walls and splinting of the area to allow for fibrotic healing and ultimate obliteration.

As a result of constant perfection of such procedures as artificial pneumothorax, phrenico-exairesis, intrapleural pneumolysis, and thoracoplasty; or combinations of the above, the outlook is now eminently better.

Needless to say, however, prophylaxis constitutes the first line of defense. Recognition of the disease prior to cavity formation and the immediate institution of adequate treatment and management will, in most cases, serve to forestall actual tissue destruction.

Material for this article comprises 651 cavity-cases diagnosed by physical signs, admitted to the State Sanatorium (Rhode Island) between 1905 and 1918; plus 803 cavity-cases diagnosed by X-ray and admitted between 1918 and 1927; thus making a total of 1,454 cases of pulmonary tuberculosis with cavity.

The statistics concerning family history, haemoptysis, pleurisy, age, color, sex, with weight, pertain to the 651 cavity-cases diagnosed by physical signs. A thorough summary of the factors considered is given by the authors and is very brief and rather all-inclusive of the statistics presented in the body of the article.

Their summary follows:

1. 1,454 cavity-cases are reviewed:
   80% died within 1 year.
   82% died within 2 years.
   85% died within 3 years.
   90% died within 5 years.
   95% died within 15 years.

2. The average duration of life of 270 cavity-cases, from the appearance of the cavity signs to death, was 15.8 months. Had the remaining survivors died the day the statistics were compiled it would have raised the average duration to 24 months.

3. 99% of 616 cavity-cases diagnosed by X-ray had tubercle bacilli in the sputum.

4. A family history of tuberculosis, a history of haemoptysis, or the age of the patient, did not materially affect the prognosis.

5. Only 1 of 57 colored patients survived 3 years.

6. The average duration of life was 16 months in males and 14 months in females.

7. The percentage of survivors after three-year and five-year periods among patients with pulse under 90, was five times as great as among patients with pulse over 100.

8. The percentage of one-year survivors was over three times as great among the patients with temperature over 90 as among patients with temperature over 100.

9. Right-lung cavity-cases had slightly more survivors and lived slightly longer than left-lung cavity-cases.

10. The percentage of one and three-year survivors was in direct relation to the amount of pulmonary disease.

11. The duration of life bore a direct relation to the number of cavities. Of 17 cases having more than 3 cavities, none survived a year.

12. 88% of patients having cavities larger than 7 cm., died within a year.

13. Small cavity-cases (1 to 2 cm.) have about 50% more survivors at the end of the first year than have large cavity-cases (2 to 15 cm.), but 82% of the small cavity-cases died within 3 years.

14. Honeycomb cases are about as serious in outlook as cases with cavities of average size. (Speaking of honeycomb, the authors are referring to cases which presented multiple cavities under 1 cm. in diameter).

15. Patients with well-formed cavity-walls had a slightly longer duration of life.

16. Patients with well-marked X-ray evidence of calcification had a greater percentage of survivors.

17. Patients with X-ray evidence of pleural thickening over the greater part of one lung had a higher percentage of survivors.

18. Of the 1,454 cavity-cases reviewed, 1,244, or 85%, are dead, and the average duration of life was 12-plus months.

(The compilation of this data was made on January 1, 1927).

In the authors' summary, they do not bring out the question of serious complications. This subject, however, is mentioned in the body of the article, which states that of 89 cavity-cases having tuberculous laryngitis as a complication, 79 died within a year the average duration of life being 6 months. Of 17 cases of tuberculous enteritis, none survived a year, the average duration of life being 5 months. Of 11 cases of diabetes, 3 survived one year, the average duration of life being 3 months. Of 15 cases with albuminuria, 3 survived a year, the average duration of life of the 12 that died being 7 months. Of 11 cases of spontaneous pneumothorax, none survived a year, the average duration of life being 4 months.

As regards the matter of weight, it was found that of 100 cavity-cases, 53 gained weight, their average duration of life being 23 months. There were 11 survivors. One patient neither lost nor gained; 46 patients lost weight, the average duration of life being 16 months and of these there were 5 survivors. Of 16 patients who exceeded normal weight, the average duration of life was 34 months and there was 1 survivor.

As to the location of cavity in the cases having 1 cavity only 97% of these cavities were above the upper border of the 3rd rib. No cases presented X-ray evidence of cavity below the lower border of the 5th rib.

The authors touch on pneumothorax treatment only in so much as to say that 48% of the 39 cases of artificial pneumothorax survived one year. The duration of life in the 19 cases that died being 13 months. Without further explanation, they make the statement: "pneumothorax treatment greatly improves the outlook." They also make the statement that unquestionably many patients are hospitalized after cavity formation has taken place because it is at this time that tubercle bacilli are readily found in the sputum and that there is usually a definite increase in fever, cough and toxemia. Further than this, the actual conclusions from the data obtained are well given in the authors' own summary above.

The Heart and Tuberculosis (Mediastinal Distortion As a Source of Circulatory Embarrassment). Daniel M. Brumfiel, Amer. Rev. of Tb., Sept., 1933.

It has long been recognized that any sudden change in intrapleural pressure, regardless of its causation, is almost immediately followed by symptoms objectively recognized as those of respiratory embarrassment, plus certain demonstrable changes in the cardiac rate and sometimes rhythm. The chief factor formerly held responsible for these symptoms was a sudden decrease in lung volume. However, this conception is gradually undergoing modification in that besides the sudden decrease in lung volume, there is an associated displacement of the mediastinal organs, which in turn, brings about such symptoms of circulatory embarrassment as could not be accounted for solely by the sudden decrease in lung volume.

Over a period of some years, this author has made similar observations as regards to symptoms of circulatory embarrassment, gradually following a slowly, but definite, displacement; or, as he calls it, distortion of the mediastinum. Mediastinal distortion may and does, occur in the numerous intrathoracic pathological conditions other than pulmonary tuberculosis, however, this author confines his observations to those patients in which there is a demonstrable mediastinal distortion resulting from the various sequelae associated with, and following, chronic tuberculous disease of the lung.

He enumerates four definite ways in which such distortion is brought about. Namely: (1) atelectasis due to bronchial obstruction; (2) pleural effusion; (3) fibrosis; (4) artificial pneumothorax. The commonest, however, is the distortion of the mediastinum, which is brought about by a slow contraction of extensive fibrotic processes, associated with chronic tuberculous infection predominant in one lung. This is most often associated with large cavity formation and chiefly involves the upper lobe, but may include the entire lung.

If the whole lung is involved, it results in dragging of the entire mediastinum toward the same side. In this group, the symptoms may be delayed, their development being so gradual that the patient does not seek medical relief or is not aware of the symptoms until the deformity has been well established.

In 15 consecutive patients in whom a diagnosis of mediastinal distortion was made by physical examination and X-ray, 12 consulted the author specifically because of "heart trouble." The other 3 patients were found to have cardiac disturbance as a basis for their symptoms but were not yet aware of that fact The symptoms usually complained of are those of palpation, precordial pain and dyspnoea (to a degree not warranted on a purely respiratory basis). Ease of fatigue and a weakness out of proportion to the extent of the pulmonary disease or its degree of activity, have been encountered.

The author states that the symptoms associated with mediastinal distortion correspond to those found in the conditions of functional disturbance of the heart and the early stages of circulatory embarrassment.

In summarizing, the author states that mediastinal distortion, incident to intrathoracic changes, may be overcome sufficiently by physiological readjustment that no symptoms are produced. On the other hand, he feels that there are a great number of cases in which subjectively, and to some extent objectively, the symptoms of circulatory embarrassment are due to visceral deformities brought about by distortion of the mediastinal structures. Such deformities are thought to result in tortion and angulation of the great vessels, particularly the venae cavae, and that the relationships and tension of the cardiac nerves likewise must be disturbed.

The symptomatology may be permanent and may finally result in true decompensatory failure with death.

Treatment in these cases is aimed solely at relief, if possible, of the tension and distortion. Such measures as therapeutic pneumothorax, phrenico-exairesis, and lastly thoracoplasty, are lightly discussed as to their relative merit.

The principal object of this paper is to call attention to the fact that mediastinal distortion, as seen occasionally in chronic pulmonary tuberculosis, may cause circulatory embarrassment of varying degrees.

DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by William E. Eastland, M.D.
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Roentgen Ray Therapy in Dermatology. Everett C. Fox, M.D., Archives of Physical Therapy, X-Ray, Radium. September, 1932, Vol. XIII.

The author prefaces this article by stating that William Allen Pusey considered roentgen therapy as the most useful addition to the treatment of skin diseases and that MacKee stated that X-ray therapy is the most useful single remedy available for skin treatment. He further points out that it is necessary for a physician to be trained in dermatology to determine the correct dosage necessary for the treatment of various skin lesions and conditions and not merely the knowledge of dosage obtained by his particular X-ray machine.

Over-treatment and excessive use of X-ray therapy must be cautiously avoided. Fox offers a table that is a good condensed form of a very comprehensive subject, giving a great deal of information dealing with various types of skin lesions and showing the average dosage required for correct therapy. The dosage is given in both skin units and R units.

The Treatment of Lichen Ruber Planus with Ouartz Light. Dr. E. Swirsky, Paris. (Presse Medicale, No. 3, 1933).

"The quartz light treatment of lichen ruber planus may be regarded as the method of choics, since failures practically do not occur and recurrences are rare. However, a strong erythema followed by abundant desquamation must be achieved, which is not so easy to attain in these cases. In cases of generalized lichen ruber planus the entire surface of the body (covering the face and eyes) is divided into four sections, each being irradiated in intervals of two days at a distance of 60 cm. from the lamp. At the beginning fifteen to twenty minutes, increasing to forty-five minutes with strict observation of the action achieved. In general, 12, rarely 15 to 20 sittings are necessary. In cases with circumscript areas, either the entire skin is covered off or the area is treated with concentrated rays, possibly with compression, at the beginning every second day at a distance of 10 to 20 cm., for ten minutes, later at a distance of 60 cm. for a longer time. In a similar manner lichen planus of the buccal cavity is irradiated with a special compression lamp, carefully beginning with two minutes, increasing two or three minutes each time until fifteen minutes, alternating between compression and 1 cm. distance. Recurrences are rare and disappear on two or three further irradiations. The action of the ultraviolet rays depends on exfoliation, intense vascular dilatation, rapid and intense cell renewal." (The above abstract was taken from Ars Medici, Vol. XI, No. 8, August, 1933).

Nickel Dermatitis From Spectacle Frames and Wrist Watch. Howard Fox, M.D., New York. The Journal of the American Medical Association, Vol. 101, No. 14, Sept. 30, 1933.

The author reports a case of nickel dermatitis calling attention to the original report of Lain two years ago. In this particular instance a 24-year old white male was affected on the posterior surfaces of the ears, the temporal region and on the sides of the nose; all of these were points where the metal portion of his spectacles contacted the skin. Also, a dermatitis appeared on the wrist at the site contacted by his wrist watch.

The metal known as "white-gold" is composed of an alloy containing nickel as is commonly found in wrist watches and spectacles. Upon removal of the offending agent, the skin condition clears.

Resorcin Anal Dermatitis Due to Resorcin in Anusol Suppositories. James H. Mitchell, M D., Chicago. The Journal of the American Medical Association, Vol. 101, No. 14, Sept. 30, 1933.

The author calls attention to resorcin sensitization occurring in one person in several thousand as noted by other investigators. He reports two cases that experienced a dermatitis due to the use of anusol suppositories, stating that they have a heavy sale in the Chicago loop.

In the first case reported, a physician was the victim. After three days' application for a mild hemorrhoid the skin around the anus became very irritated. Upon discontinuing the suppository the condition cleared with the acid of petrolatum. A patch test made on the arm very clearly showed a definite sensitization as well as allied drugs.

A second case, that of a cosmetic manufacturer, consulted a physician for a severe dermatitis about anal region. One dermatologist gave her anusol suppositories which produced a severe pruritus. After radiotherapy and discontinuance of the suppositories the dermatitis healed. Later, the anusol suppository was repeated and resulted in further dermatitis which again cleared on discontinuance. A patch test showed very definite sensitization to the drug.

These observations merely indicate that there is one more agent to add to the long list of external irritants.

EYE, EAR, NOSE and THROAT

Edited by Marvin D. Henley, M.D.
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Operative Treatment of Chronic Glaucoma. Arnold Knapp, M.D., New York. Archives of Ophthalmology, September, 1933.

The type of operation, the results obtained and the subsequent treatment are given in a tabulated form of two hundred cases of chronic glaucoma. The cases are summarized as follows: "The table shows that ninety-five Lagrange operations were performed, with success in eighty-five. In ten cases filtration was not reestablished, and tension returned. In two of these ten cases trephining was then successfully practiced, and in one, cyclodialysis, but without a permanent result. Sixty of eighty trephine operations were successful; in twenty cases increased tension returned. In nine of these twenty cases a second trephining was performed, with success in seven and failure in two; cyclodialysis was done in four cases, with four failures. (Failure in twenty-five per cent of cases after trephining corresponds closely with European statistics). Iridectomy was attempted in twelve cases. The tension was permanently reduced in five cases, and in seven it recurred. In 2 of these 7 cases trephining was carried out; it was successful in one and failed in one. In five of eight cases cyclodialysis reduced the tension; in three it failed to do so. Iridotasis

was performed in five cases. In all of these the tension remained low. Everyone knows that the results of operations for chronic glaucoma depend greatly on the type of eye affected. A difficult type is the very hypermetropic, rudimentary eye with an unusually shallow anterior chamber; operations in such cases usually do not establish drainage, and the anterior chamber remains shallow. The prognosis is bad, though extraction of the lens may be attempted. There were fourteen cases in which vision and particularly the field underwent progressive deterioration even though sufficient filtration had been established. This is a striking feature which is difficult to explain, though it has been repeatedly mentioned in the literature. While investigations of glaucoma and its causes are undoubtedly making progress and should be encouraged in every possible way, valuable time must not be lost in experimenting with medical treatment, and the favorable time for successful operation must not be allowed to pass. There are undoubtedly several methods of operating for chronic glaucoma by which a satisfactory result can be obtained, and I think it was Dr. John E. Weeks who said: "whatever method the operator can use with confidence is the best method for him."

Septic Sore Throat. Dr. Calvin G. Page, Boston. The Laryngoscope, September, 1933.

Septic sore throat was first mentioned as such in the attack in Boston, Brookline, and Cambridge in May, 1911. Prominent symptoms were: sudden onset, peculiar reddening and infiltration of the pharyngeal wall, as well as of the tonsil, marked prostration and tendency to relapse, slow pulse, and irregular temperature. The mortality was high particularly in elderly people. In 1912, there were over 10,000 cases in Chicago with a mortality of over three per cent. These were traced to a cow with an infected teat which had been cared for by a man with a septic sore throat. This particular strain of streptococcus is identified by (a) the fact that on fresh moist blood-agar the colonies are moist, raised and larger than the usual hemolytic colonies and that the surface colonies soon flatten out and (b) there is a capsule or a capsular space along the chain of the cocci from recently isolated cultures when observed in moist india ink preparations. Cultures were made from tonsils of two hundred patients attempting to grow this strain of streptococcus. The experiment was not successful. Some of the complications of septic sore throat are: middle ear infection, mastoid infection, cellulitis, and deep abscesses of the neck. It is possible to have carriers of the organism so such foci as tonsils should be removed. The predominating symptom is not constant: sometimes the chief complaint is a sore throat and other times there is the typical scarlet fever eruption. Streptococcus, erysipelas, and septic sore throat have different agglutinative groups. The proper operation of pasteurization plants of raw milk will exclude the infection from being milk-borne.

Tetany in Local Anesthesia. Henry S. Dieder, M.D., Philadelphia. Archives of Otolaryngology, August, 1933.

The dreaded occurrence of tetany after injection of local anaesthesia for tonsillectomy is related by the author. In preparation the pillars of the tonsils were painted with iodine and six cc. of .5% procain hydrochloride with five drops of adrenalin chloride 1:1000 were used. Immediately the patient complained of a prickling sensation in his hands and feet followed by the characteristic posture of tetany, i.e., arms, hands, and thumbs in the adductor position. The attack lasted about five minutes. The operation was performed without further interruption. Barbital was used after this, pre-operative, in an attempt to prevent a recurrence of this startling experience. Nevertheless, five cases under different circumstances and different strengths of anaesthetics occurred. Cocaine hydrochloride and adrenalin were used in one in removal of a middle turbinate. The maximum length of attack was thirty minutes with no untoward sequelae. The literature shows twenty cases reported by Dr. S. E. Roberts during sub-mucous resection in which cocaine mud was used for anaesthesia. The onset started ten to forty minutes after anaesthesia had been applied and lasted two to four hours, the height of the seizure being about fifteen minutes from the beginning. Pre-operative morphine and scopolamine had been used instead of barbital. The twenty cases were of nervous women, ages eighteen to forty years. Authorities record suppressed nervousness and hyperpnea but not local anaesthesia in connection with tetany. Tonic spasms of the hands have been produced by continued forced breathing for a period of six minutes. Under the influence of hyperpnea there occurs: (1) 44% fall in the carbon dioxide tension of the alveolar air; (2) 14.3% fall in carbon dioxide-combining power of the venous plasma; (3) a decrease in the acidity of the urine; (4) diuresis; (5) an increase in the rate of elimination of phosphates; (6) suppressed rate of ammonia excretion; (7) leukocytosis; (8) hyperglycemia; (9) typical symptoms, including tetany; (10) muscle "cramps" and other spasm possibly due to temporary alkalosis. The theory suggested is that the tetany may be due to a temporary alkalosis produced by the very rapid breathing of the patient during operation. This does not explain the reaction which was encountered while removing the middle turbinate, however, it has been shown conclusively that hyperneic cases can be produced by disquietude in nervous persons. Rarely if ever does the pulse and respiration rate of an individual remain normal during the course of an operation performed under local anaesthesia. Deficiency of the parathyroids is an acknowledged element in tetany, this condition producing a hypocalcemia. The author states that this should not have been a contributing cause in his cases as he routinely administered calcium for two days previous to operation. No reference is found in search of the literature of epinephrine being a causative factor of tetany. There is the possibility of injecting the solution directly into the blood vessel, but the author rules this out because of the fact that the tonsils were well elevated from their fossa after his method of injection. The Commission on Anaesthesia reports nothing analagous to the symptoms as described in these cases. Prevention of hyperpnea by the administration of proper sedatives and maintenance of the calcium content of the blood are urged as safe guards.

The Treatment of Chronic Suppurative Otitis. T. Ritchie Rodger (Hull). The Journal of Laryngology and Otology, August, 1933.

The subject is discussed from a social as well as a surgical standpoint and the author calls it "a reproach to the profession in general and the otologist in particular." Considering the increased number of otologists in the past generation, much progress should and is being made in the care of this unfortunate condition. In the past the family physician's advice for a running ear was to keep it dry—that only when the discharge stopped was there any danger. It was taken for granted that otorrhoea was

the natural result of scarlet fever and measles and the chronic ear, the aftermath of the acute ear, was given little attention. Now we have aural clinics in connection with medical schools. Adenoids and the diseases of childhood are more closely watched with many palliative and preventive measures being administered. It is almost impossible to complete a comparative complication of statistics in regard to the discharging ear but a years record from the Hull Royal Infirmary showed approximately ten times as many chronic ears were seen by a specialist in 1932, as in 1920. Every dry ear accomplished through operation and every successful Schwartze operation, when conservative treatment and non-operative methods have failed, can be pointed out as a chronic otorrhoea prevented. Since every acute infection must be looked upon as a possible chronic one it may be justly said that the chronic ear is mainly due to improper care during the acute stage. This does not necessarily place the blame upon the otologist or the general practitioner since the patient is the one most frequently at fault. Neither the patient or the doctor should permit the case to be dismised until the ear is entirely dry. The advisibility of myringotomy is generally accepted and if adenoids are present they are frequently removed at the same time, providing the tonsils are not touched. At the beginning of the case it should be definitely stated that if the discharge continues after a certain length of time, even if all of the symptoms have disappeared, an operation will have to be considered not only for the preservation of hearing and prevention of chronicity but to prevent the potential element of danger in every chronic ear suppuration. Except in such cases as the large anterior perforation with small apparent tubal mucoid discharge the rule should be: "Every discharging ear which cannot be made to cease by careful conservative treatment within a reasonable time, ought to be subjected to operation." Of the different non-operative treatments the author prefers the dry one after a thorough preliminary cleansing. If adventitious growths are present in the middle ear or external auditory canal these must be entirely removed before treatment is inaugurated. The exetrnal ear is syringed gently and the middle ear cleansed by means of a Hartman's cannula. When the solution returns clear the surface is dried and boracic powder is insufflated. The patient is told to return when the ear is moist and the same precedure is repeated. Any untoward factor present in the nose or throat must be removed. These are just a few of the principles which we should keep in mind if we are to decrease the incidence of the chronic discharging ear.

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
714 Medical Arts Bldg., Oklahoma City

Spondylolysis, Its Causes and Its Consequences (Spondylolyse Ses Causes et Ses Consequences), by Carl Roederer, Paris, and Pierre Glorieux, Bruges, La Presse Medicale, October 7, 1933.

Spondylolysis (Spondylolyse) is defined as "a solution of continuity in the posterior vertebral arch, passing between the superior articular process and the inferior articular process, the gap being either unilateral or bilateral."

Its existence has been known for many years. Schwegel, Broca, Farabeuf, Wellis, Le Double have written about it. It is estimated that it exists in from 2 per cent to 5 per cent of vertebral columns examined.

It may be congenital or acquired, but in either case it has a deleterious static effect upon the vertebral column. The authors believe that there are many acquired cases, the cause being trauma.

There are several theories as to the type of trauma. The authors believe that hyperextension of the spine is the principal factor.

Spontaneous localized pain and pain on effort, in lower back after a trauma, in persons without symptoms before the trauma, suggest the possibility of a fracture of a vertebral isthmus (acquired spondylolysis).

The fifth lumbar is the usual site.

The most important part of the article is the definite statement that the gap (fracture line) is always visible in a "three-quarter" X-ray negative if proper search is made. A stereoscopic view is a valuable adjunct, but its importance is secondary to that of the "three-quarter" negative.

Comment: This subject is of particular importance to the surgeon doing industrial work. In injuries followed by pain and weakness about the lumbosacral junction, this lesion should always be remembered. Its demonstration by antero-posterior and profile views is not commonly possible. For that reason the "three-quarter" negative suggested in the article should be put to a practical test.

—LeRoy Long.

Post-Traumatic Subdural Hematoma — Operation — Cure (Hematome — Sous-Dural Chronique Post-Traumatique—Operation—Guerison, by R. Fischer and G. de Morsier, La Presse Medicale, October 4, 1933.

A man of 55, house porter (concierge). Fall from motocyclette December 24, 1931, with stunning and a wound about left brow. Walk of forty-five minutes to his home.

Returned to work in eight days. At that time felt well. Within few days some difficulty in walking, easily exhausted, continued to work with difficulty.

At the end of about a month fatigue pronounced. Could no longer work. Defective memory, indifferent, taciturn, momentary mental confusion.

On March 8, 1932, confined to bed, disoriented, occasional erotic gestures, incontinence urine and feces. Reflexes little more active on right side. Right arm and leg hypertonic. Right Babinski. Understands orders but cannot read. Aproxia pronounced.

Remission of symptoms a few days later—oriented, continent, speaks and writes clearly, co-ordination movements good, but a persistence of defective function of right arm and leg, and of right Babinski. Abolition reflexes right abdomen. (This noted at beginning of symptoms).

Lumbar puncture. Cerebro-spinal fluid clear, pressure low, Wassermann negative.

Diagnosis: Subdural hematoma, anterior left hemisphere. Operation March 18, 1932. Bone flap left parietal. Dura mater bluish. Cyst containing fuild the color of bilirubin, and blood clots—about 60 c.c. to 70 c.c. in all—beneath dura, but not attached to it. Cyst covered most of hemisphere. Cyst wall about one-half milimenter in thickness.

Contents of cyst removed with care but membrane not disturbed. Cure rapid and complete.

The authors present the interesting hypothesis that,

because of the difference between the osmotic pressure of the contents of a subdural cyst resulting from hemorrhage, and the surrounding cerebro-spinal fluid, the cyst increases in size by the entrance into it of the cerebrospinal fluid. They report experimental work which gives the hypothesis strong support.

—LeRoy Long.

Billroth I (Haberer) Operation For Bleeding Duodenal and Gastric Ulcer. Waltman Walters, M.D., Rochester, Minnesota. Staff Meetings of The Mayo Clinic, September 27, 1933.

Walter has recently operated on 2 cases by this method, in each of which the bleeding lesion was removed en bloc, with the first portion of the duodenum, together with a sufficient portion of stomach to reduce gastric acidity. The end of the stomach was then anastmosed directly to the duodenum, using the Haberer method of decreasing the circumference of the stomach in order that it might be approximated to the smaller circumference of the duodenum.

"In the Mayo Clinic, various methods of treatment of gastric and duodenal ulcer have been employed in the past thirty-five years. These methods have consisted of the following: (1) removal of the ulcer by the cautery method of Balfour or by knife excision with reconstruction of the pyloric outlet; (2) gastro-enterostomy; (3) segmental resection of the stomach or duodenum, and (4) gastric resection, using the anastomotic method of Polya, Balfour or Billroth as indicated in individual cases. Sometimes excision of the ulcer and pyloroplasty are combined with gastro-enterostomy."

"The results of these procedures in large series of cases in which operation has been performed in the Clinic have been reported from time to time by Balfour and by Judd. A conservative attitude in the treatment of patients with duodenal ulcer, especially when they are not complaining of bleeding, obstruction or perforation, has always been maintained. The results of this policy have been a low mortality rate and excellent results otherwise in suitably selected cases. Two years ago, Balfour found that operation had been advised for approximately 45 per cent of the patients who presented themselves at the Clinic with chronic duodenal ulcer during the preceding year; the others were placed on a medical regimen. The basis for advising operation was the occurrence of hemorrhage, perforation, or obstruction, or failure of adequate medical care to produce the desired results. The surgical procedure in each case of duodenal ulcer (or of gastric ulcer) was determined at the time of the operation and that which seemed most suitable, whether excision of the lesion with pyloroplasty, gastro-enterostomy, gastroduodenostomy or gastric and duodenal resection, was performed. The principal advantage desired of any method was that it should make possible removal of the lesions, safely whenever possible, but always with relief of the pyloric and duodenal stasis. Many large, perforating, and obstructive duodenal ulcers can be removed only with considerably greater risk than when the indirect operation of gastro-enterostomy is carried out. Yet, in most cases of this type, the results following gastro-enterostomy have been among the best following any surgical procedure. Here, again, the results of these various procedures in large groups of cases have been reported by Balfour and by Judd.

Until 1921, in most of the large clinics in this country and abroad, the methods of surgical attack on duodenal ulcer consisted primarily of excision of the ulcer, with pyloroplasty, gastro-enterostomy or gastroduodenostomy. Not infrequently, gastro-enterostomy was performed without disturbing the duodenal lesion. In central Europe, subsequent to the war, it was noted that a greater percentage of patients were developing recurring ulcer following these operative procedures than had been apparent previously. The explanation of this has been placed on a pathologic basis by Konjetzny, Anschutz, Puhl and others, who showed that in their cases duodenal ulcer, almost without exception, was accompanied by, or preceded by, marked gastritis involving, most often, the lower third of the stomach. Principally for this reason, and because of an increasing percentage of recurrence after gastro-enterostomy, gastric resection, with and without partial duodenectomy, became popular among surgeons in Germany, Austria and Hungary. The presence of this gastritis, and the reported incidence of recurring ulceration following gastro-enterostomy in from 10 to 20 per cent of their cases, led Snell and Walters to make a comparative study of duodenal and gastric lesions seen at operation in the countries mentioned with those seen at operation in the Mayo Clinic. They have described and commented on the dissimilarity of lesions encountered on the two continents and have emphasized the relatively uncommon occurrence of association of gastritis, with duodenal ulcer in patients operated on in the Clinic.

However, by resection of 15 to 17 c.m. of the stomach, one is able to decrease not only the total gastric acidity, but apparently, also the presence of free hydrochloric acid, often to a minimum, as demonstrated by fractional analysis of gastric content following the test meal. It is this particular feature, Walters believes, which lends itself to consideration in the surgical care of certain patients with duodenal ulcer, when the condition is complicated by an unusually high value for gastric acidity. The researches of Mann, Dragstedt, Ivy, and others have demonstrated experimentally the importance of the acid factor in the development of intestinal ulcers. It is known that properly performed gastro-enterostomy with a proper functioning gastro-enteric stoma, usually decreases the acid content of the stomach. Rivers has shown that patients who have undergone gastro-enterostomy and whose gastric acidity has become decreased have obtained unusually good results from this operative procedure.

The Billroth I method in which direct anastomosis is made between the end of the stomach and duodenum, after removal of ulcerating lesions of the stomach and duodenum, would appear to be an ideal method of restoring gastro-intestinal continuity. it has an advantage over pyloroplasty in the greater reduction of gastric acidity which follows, but has the disadvantage of carrying a somewhat greater operative risk. Both procedures result in the gastric secretion being made to empty into the part of the small intestine that is most resistant to this secretion; namely, the second portion of the duodenum, and area where ulceration never occurs. The Billroth I type of gastric and duodenal resection removes the gastric or duodenal lesion, reduces gastric acidity and restores gastroduodenal continuity.

—LeRoy Downing Long.

Advantages and Technic of Preliminary Hemostasis in Thyroidectomy. Martin Nordland, M.D., and Lawrence M. Larson, M.D., Minneapolis, Minnesota. The Western Journal of Surgery, Obstetrics and Gynecology, Volume 41, Number 9, September, 1933.

The advantages and technic of obtaining hemostasis in goiter surgery by the ligation of the inferior

and superior thyroid arteries preliminary to subsequent thyroidectomy are described in detail.

Ligation of the inferior thyroid arteries has been found to be advantageously accomplished through the extrafascial route rather than within the capsule of the gland.

The procedure of inferior arterial ligation is one which can be done rapidly; it can be carried out through the same incision as is used for the thyroidectomy, and it adds little or no risk to the operation.

The arterial supply to the upper poles of the thyroid gland can be interrupted through ligature of the poles themselves or by isolating and tying the vessels alone. The former procedure has the advantage of preserving that portion of the gland which is most likely to be normal and healthy. Care must be taken in ligations of the superior thyroid vessels, not to include the superior laryngeal nerve, in as much as danger to this structure may result in motor disturbances of the larynx.

Preliminary ligature of all four arteries to the thyroid gland has been carried out in 168 cases by the authors, and advantages of this procedure they summarize as follows:

(a) With proper preliminary hemostasis as recommended, the postoperative field is drier, the incidence of injury to the recurrent laryngeal nerves is definitely decreased, fewer ligatures on bleeding vessels are necessary, postoperative wound drainage is less in amount, and a better cosmetic as well as functional result is uniformly obtained.

(b) The particular indication for preliminary ligation of the inferior thyroid arteries exists in the case of recurrent toxic goiter in which secondary operations are especially prone to be complicated by nerve injury, hemorrhage and infection. Improvements in results as well as facilitation of technic have been found to accompany the procedure in this type of case.

Following ligation of all four arteries to the thyroid gland it has been proved, both experimentally and clinically, that the nutrition to the parathyroid bodies is not impaired. Actually, less danger to these glands exists when preliminary ligation is done, because of the fact that a drier field is present as well as a cleaner dissection made possible, so that these important structures can be more easily avoided.

In the authors' experience of 168 cases they have found that preliminary extrafascial ligation of the inferior thyroid arteries combined with polar ligation of the superior vessels is a procedure which is accompanied by few or no dangers, but possessing many advantages in the surgery of the thyroid gland.

—LeRoy Downing Long.

Adynamic Ileus. Alton Ochsner and I. M. Gage, New Orleans, La. American Journal of Surgery. May, 1933, Page 378.

This excellent article is too long for abstracting and it is such a valuable article that it should be read in its entirety. Anyone who does abdominal surgery should read this article. Dr. Ochsner and his associates have been doing much valuable experimental work on the intestinal tract in recent years.

The conclusions given meet with my hearty approval. He summarizes his article as follows:

1. The causes of adynamic ileus are varied. They may be intra-abdominal or extra-abdominal. The most frequent cause of adynamic ileus is exposure to air and manipulation during laparotomy.

2. Adynamic ileus occurs earlier postoperatively than mechanical ileus. It is characterized by the absence of colicky, intermittent pain. Plain roentgenograms of the abdomen are of inestimable value in the diagnosis of all forms of ileus.

The treatment of adynamic ileus varies according to the type. The prophylactic treatment consists of abandonment of preoperative and postoperative catharsis and the avoidance of unnecessary trauma and peritoneal contamination during the performance of a laparotomy.

4. Physiologic ileus which occurs for varying periods of time following all laparotomies is treated by withholding the oral administration of all substances until nausea has ceased, by the application of heat to the abdomen, and by the administration of morphine. Water balance should be restablished.

5. Severe adynamic ileus is treated by transduodenal decompression by means of indwelling nasal catheters and remineralization of the patient. Hypertonic salt solutions ("hypertonic" Ringer's and "hypertonic" Hartmann's solutions) injected intravenously stimulate the intestinal movement in adynamic ileus. In severe cases one or more enterostomies are frequently necessary in order to decompress the dilated intestine. A splanchnic book (splanchnic or spinal analgesia) is often efficacious. Drugs are of little or no value.

LeRoy D. Long.

REPORT OF EXAMINATIONS FOR LICENSES TO PRACTICE MEDICINE

Examination held at State Capitol, Oklahoma City, September 12th and 13th, 1933. The following applicants passed:

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
Daniels, Harry Anthony	1896	Staples, Minn.	Univ. of Minn.	1921	Okla. City
Hemphill, Clyde Hoke	1891	Marion, N. C.	Univ. of Marylanc	1913	Asher, Okla.
Morey, John Barnhart	1904	Dansville, N. Y.	Univ. of Buffalo	1927	Ada, Okla.
Newman, Floyd Smith	1906	Jay Bird, Ohio	Univ. of Tenn.	1931	Shattuck, Okla.
Hull, Wayne M.	1908	Parkston, S. D.	Univ. of Okla.	1932	Okla. City
Munding, Linus A.	1906	St. Paul, Kans.	St. Louis Univ.	1932	Muskogee, Okla.
Whitsitt, James Joseph	1907	McKenzie, Tenn.	Univ. of Tenn.	1932	Drumright, Okla.
Kane, Bernard Evan	——	Kane, Penn.	Univ. of Chicago	1933	Okla. City
Lamb, John H., Jr.	1905	Manila, P. I.	Univ. of Okla.	1932	Okla. City
Hemphill, Geo. Kenneth	1905	North Loup, Neb.	Univ of Penn.	1931	Pawhuska. Okla.
Steel, Marcella Reed	1905	Minn, Mankato	Univ. of Wisc.	1930	Tulsa, Okla.
Campbell, John Duval	1905	Dallas, Tex.	Baylor Univ.	1932	Duncan, Okla.
Veazey, Lyman C.	1904	Van Alstyne, Tex	Univ. of Texas	1932	Ardmore, Okla.
Aday, Dewey	1898	Marshall, Ark.	Univ. of Ark.	1930	Bartlesville, Okla.
Fowler, Arthur D., Jr.,	1908	Pine Bluff, Ark.	Univ. of Ark.	1932	Seminole, Okla.